



SER - Self Evaluation Report
ESEVT Evaluation
Faculty of Veterinary Medicine and Animal Science,
SLU, Uppsala, 2017



CONTENTS

| | |
|---|-----------|
| INTRODUCTION | 1 |
| 1. OBJECTIVES AND ORGANISATION | 2 |
| 2. FINANCES | 11 |
| 3. CURRICULUM | 15 |
| 4. FACILITIES AND EQUIPMENT | 29 |
| 5. ANIMAL RESOURCES AND TEACHING MATERIAL OF ANIMAL ORIGIN | 38 |
| 6. LEARNING RESOURCES | 44 |
| 7. STUDENT ADMISSION, PROGRESSION AND WELFARE | 47 |
| 8. STUDENT ASSESSMENT | 53 |
| 9. ACADEMIC AND SUPPORT STAFF | 57 |
| 10. RESEARCH PROGRAMMES, CONTINUING AND POSTGRADUATE EDUCATION | 63 |
| 11. OUTCOME ASSESSMENT AND QUALITY ASSURANCE | 69 |
| LIST OF ESEVT INDICATORS | 74 |
| GLOSSARY | |
| LIST OF APPENDICES | |

This SER is prepared according to the instructions in the ESEVT SOP-Uppsala 2016.

Due to the fact that the Veterinary Training Hospital organisationally stands outside the Faculty of Veterinary Medicine and Animal Science, a number of supplementary tables had to be prepared, which resulted in a slight overdraw of the 70 pages requested in the SOP instructions.

INTRODUCTION

The Swedish University of Agricultural Sciences (SLU) this year celebrates 40 years since the establishment but the Veterinary School as such has a history long back, the first in Sweden was established already 1775 in Skara (the 6th in order in Europe), then moved to Stockholm and finally to Uppsala 1976. With the new premises, the Centre for Veterinary Medicine and Animal Science (VHC), the Faculty of Veterinary Medicine and Animal Science (VHF) has very good conditions for efficient education and research. However, the cooperation between VHF and the, from the faculty independent, University Animal Hospital (UDS) needs to be improved,

The Self Evaluation Report (SER), an important step in the visitation process, has been prepared by the establishment. It is obvious - also to those not being on the visiting team - that the SER is essential for the visitation, by giving the background material necessary for the team members to be able to identify and focus on the strengths and weaknesses of the Faculty and the Departments scrutinized.

Since the 2007 ESEVT evaluation, a number of important steps have been taken for further development of the role of the Swedish University of Agricultural Sciences in veterinary education and research. These include:

- further development of the Faculty of Veterinary Medicine and Animal Science, established in 2004,
- a reorganisation at SLU faculty level and two 'shared' departments added to VHF in 2014,
- a new organisation for the administration and management of undergraduate education at SLU starting 2014,
- introduction of the 2007 curriculum including adaptation to the "Bologna process",
- an increase of veterinary students admitted by 25% (from 80 to 100),
- establishment of a separate University Animal Hospital organisation in 2007, not under the Faculty but under the Vice-Chancellor,
- planning and realisation of a Centre for Veterinary Medicine and Animal Science (VHC) at the Ultuna campus, including major investments for research and clinical activities,
- planning and realisation of the new Swedish Livestock Research Centre in Lövsta,
- relocation of education programmes (Veterinary nursing and Ethology and animal welfare) from Skara to Uppsala, decided by the board 2013,
- a strict financial allotment between education and research since 2011.

Most of these measures will be presented in detail in the different SER Chapters. It is, however, evident that during the almost ten years since the last EAEVE evaluation there has been a continued and essentially positive development of veterinary education and research at our University. The main worry is – as always – the gradual decrease in the value of governmental revenues due to increase in salaries and other costs that is not compensated for.

This SER is the result from efforts made by individual Faculty members, by Departments, by Faculty Committees, by the Dean's Office, and by the Student representatives. The readiness to provide material and views on education, research, hospital services, etc. and the thoroughness with which this has been done is gratefully acknowledged. The assistance given by the University Administration and by the University Library is appreciated. Special thanks to Professor Camilla Björkman and Senior Advisor Göran Dalin who have been responsible for keeping together this SER.

Finally, it is hoped that this SER will provide an accurate and functioning basis for the important work that will be done by the visitation team

Uppsala, July 25, 2017

Kristina Dahlborn
Dean

Anne-Marie Dalin
Associate Dean

1. OBJECTIVES AND ORGANISATION

1.1.1. Details of the Establishment

Swedish University of Agricultural Sciences
Faculty of Veterinary Medicine and Animal Science
PO Box 7084
SE-750 07 Uppsala, Sweden

Phone No. +46 (0)18 67 10 00

Email address dekan.vh@slu.se

Website address www.slu.se/en/

Vice-Chancellor: Professor Peter Högberg, MScForest, PhD

Dean: Professor Kristina Dahlborn, MScAgric, PhD

Associate Dean responsible for education: Professor Anne-Marie Dalin, DVM, PhD,
DiplECAR

Head of the University Animal Hospital: Dr Henrik Ericsson, DVM, PhD

Official authorities:

Ministry of Enterprise and Innovation

UKÄ – The Swedish Higher Education Authority

Some facts and figures

Here you can find a presentation of SLU and links to PowerPoint presentations - [LINK](#)

1.1.2. Summary of Strategic Plans

1.1.2.1. University Strategic Plan 2017-2020

The full text of the plan can be found in Appendix 1.1. [LINK](#)

1.1.2.2. Faculty of Veterinary Medicine and Animal Science Strategic Plan 2017-2020

The full text of the plan for the Faculty of Veterinary Medicine and Animal Sciences (VHF) can be found in Appendix 1.2. [LINK](#)

The aim of the VHF strategy is to set the overall operational direction for 2017–2020 as it relates to research, education, environmental monitoring and assessment (FOMA) and collaboration. The strategy includes the five focus areas described in SLU's strategy - *Employees, Students and Education, Research Infrastructure, External Collaboration and our shared SLU*. The strategy also highlights specific external conditions and a selection of particularly relevant research areas.

Based on SLU's mission and vision, the VHF has formulated a more specific vision for our operations: *The sustainable use of animals for global food supply, public health, and with the well-being and health of the animals themselves in focus.*

In addition to SLU's four priority research domains, *Bio-based materials, Sustainable and secure food supply, Economics and The significance of experiencing nature and of companion animals oh human health and well-being*, VHF also prioritises research in *Animals for their own sake, but also where animals can serve as models for human diseases (including Translational Medicine), Reduced Use of Antimicrobials (One Health Perspective), Complex Diseases and Diagnosis, Wildlife Research, System Biological Studies, Sustainable Production Systems, and New Animal Feeds*, as well as *Continued and Developed International Cooperation*.

1.1.3. Summary of the VHF Operating Plan

In the operating plan for 2017-2020, the VHF defines and prioritises activities to be performed during the period in order to achieve the objectives established in the VHF Strategic Plan. The plan was established in June 2017 and is not yet available in English. Appendix 1.3. [LINK](#)

The plan further describes the planned *research activities* within the priority areas identified in the University and Faculty strategic plans.

In the field of *first and second cycle education*, VHF priority is given to enhanced and extended recruitment of students, pedagogic development of teaching staff, strengthened skills training, external collaboration, and international mobility among students and teachers.

The VHF's goals of *third cycle education* are: to increase the number of doctoral students, to increase the share of students with a VHF degree, that the Faculty's Graduate School of Veterinary Medicine and Animal Science (GS-VMAS) will become more proactive and visible, and clearer career paths for doctoral students and postdocs. An important goal is to work for the integration of postgraduate education in veterinary medicine and the residence programmes.

The VHF is the principal of the *FOMA* Non-toxic Environment programme, which was evaluated in 2016. The improvement proposals identified in the evaluation provide a basis for further development in the coming strategic period.

During the period, the VHF will also contribute to an increased cooperation and mobility between academia, industry, organisations, and government.

1.1.4. Organisational chart

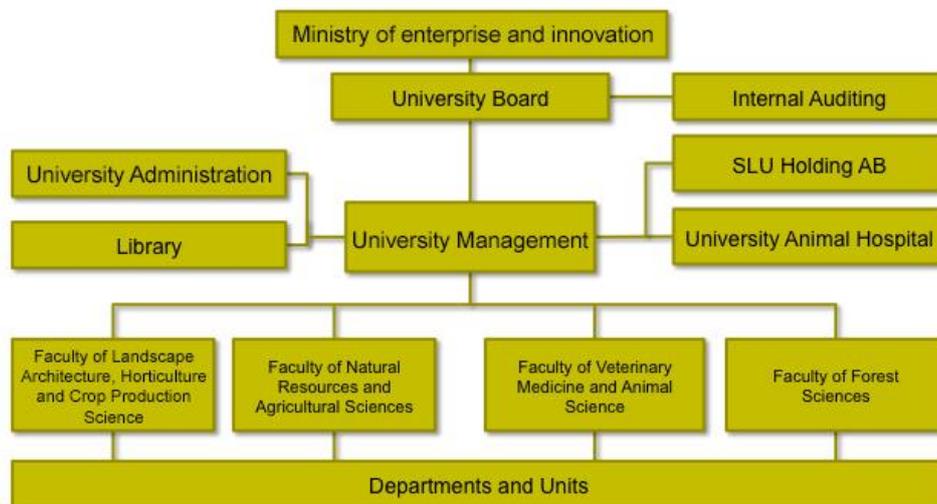


Fig. 1.1. Organisational chart showing the chain from Ministry to Departments. University Management includes Vice-Chancellor, Pro-Vice-Chancellor and Deputy Vice-Chancellors.

Education at VHF

Bachelor's programmes (180 ECTS, taught in Swedish)

- Veterinary Nursing (Location: Uppsala)
- Ethology and Animal Welfare (Location: Uppsala)
- Equine Science, three specialisations (Locations: Flyinge, Strömsholm and Wången)
- Companion and sport animals (Location: Uppsala)

Master's programmes (120 ECTS, taught in English)

- Animal Science (Location: Uppsala)

Professional programmes (taught in Swedish)

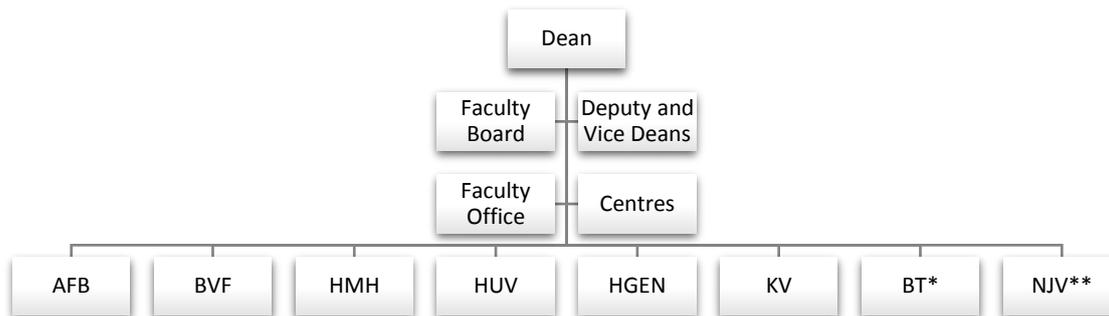
- Agriculture programme - Animal Science, 300 ECTS (Location: Uppsala)
- Veterinary Medicine Programme, 330 ECTS (Location: Uppsala)

Courses

- A number of single courses at Bachelor's or Master's level

Supplementary education (taught in Swedish)

- TU-VET: Supplementary education for veterinarians with degrees from countries outside the EU/EEA and Switzerland, 120 ECTS (Location: Uppsala)



Two departments are organised jointly between the Faculty of Veterinary Medicine and Animal Science (VHF), *the Faculty of Landscape Architecture, Horticulture and Crop Production Science (LTV) and **the Faculty of Natural Resources and Agricultural Sciences (NJ).

Fig. 1.2. Organisational chart showing the main features of the Faculty of Veterinary Medicine and Animal Science. There are eight Departments, for key to abbreviations, see below.

1.1.5. Departments/units/clinics and councils/boards/committees

VHF is the principal actor in veterinary and animal science research and higher education in Sweden, and the only educational establishment for veterinarians in the country.

1.1.5.1. The Departments

The Faculty is primarily located in Uppsala, with the Centre for Veterinary Medicine and Animal Science (VHC) at Campus Ultuna and the Swedish Livestock Research Centre 8 km east of Ultuna. In Skara, Alnarp and Röbbäcksdalen there are also departments linked to VHF.

The scientific Departments vary in size, from 29 up to 92 FTE positions. The University Animal Hospital, which is organisationally not part of VHF, has 151 FTE.

The Department of Anatomy, Physiology and Biochemistry (AFB) consists of the Section of Anatomy and Physiology, the Section of Biochemistry and the Unit of Equine Science. AFB currently has 37 employees. The research focuses on reproduction and tumour biology, allostasis, stress, exercise physiology, biomechanics and circulatory function, alternative protein sources, biomedicine with focus on nucleotide metabolism, protein structure and function. Course assignment is 221.6 FTE of which veterinary students 94.7 FTE. [LINK](#)

The Department of Biomedical Sciences and Veterinary Public Health (BVF) has two sections; one including pathology, pharmacology, toxicology and immunology, and the other including food safety, virology, bacteriology, parasitology and epizootiology, with research and postgraduate studies in all subjects. BVF has around 60 persons in scientific and technical staff. All subjects taught at BVF are covered by the One Health – One Medicine umbrella. Course assignment is 163.6 FTE of which veterinary students 137.6 FTE. [LINK](#)

The Department of Animal Environment and Health (HMM) employs 51 staff members. There are four research sections: Anthrozoology and Applied Ethology; Environment, Care and Herd Health; Ethology and Animal Welfare; and Production Systems. Two sections are located at Campus Skara and two at Campus Ultuna. HMM research involves relationships between housing, management, feeding, animal health, behaviour, animal welfare and environmental hygiene. Course assignment is 109.7 FTE of which veterinary students 7.4 FTE. [LINK](#)

The Department of Animal Nutrition and Management (HUV) encompasses the main agricultural species, *i.e.* cattle, sheep, pigs and poultry, as well as reindeer, fish, horses and dogs. HUV employs 44 full-time staff. The research is focused on feed, nutrient metabolism and utilisation, and on the relationship between husbandry systems, animal welfare, health, behaviour and production for the species mentioned. Teachers from HUV participate in Veterinary Medicine Programme courses run by other departments. Course assignment is 136.8 FTE of which veterinary students 0 FTE. [LINK](#)

The Department of Animal Breeding and Genetics (HGEN) has four sections; Molecular Genetics; Bioinformatics; Quantitative Genetics; and Applied Genetics. HGEN employs 55 FTE.

The research at HGEN covers DNA and its expression in nearly all domestic animal species and some of their pathogens, novel tools for bioinformatics and molecular breeding, new breeding approaches in livestock, and managing two national breeding programmes of fish for aquaculture. Teachers from HGEN participate in Veterinary Medicine Programme courses run by other departments. Course assignment is 32.3 FTE of which veterinary students 0 FTE. [LINK](#)

The Department of Clinical Sciences (KV) has five sections; Diagnostics & Large Animal Medicine and Surgery; Small Animal and Surgery; Ruminant Medicine & Veterinary Epidemiology; Reproduction; and Animal Nursing. The total number of employees is 123. KV is responsible for the majority of the residency training programmes at SLU in collaboration with the University Animal Hospital (UDS). Research areas include; Anaesthesiology and pain research; Animal reproduction and udder diseases; Clinical biomechanics; Clinical neuroscience; Clinical pathology; Comparative and regenerative medicine; Diagnostic imaging; Endocrinology; Equine medicine; Porcine medicine; Ruminant medicine; Small animal medicine, Odontology, Soft tissue and orthopaedic surgery; Veterinary nursing; Veterinary epidemiology; and Veterinary rehabilitation. Course assignment is 306.0 FTE of which veterinary students 183.4 FTE (62% of the Veterinary Medicine Programme courses). [LINK](#)

The Department of Biosystems and technology (BT) is located at the Alnarp Campus just outside Malmö. One veterinary teacher from BT is engaged in the Veterinary Medicine Programme. [LINK](#)

The Department of Agricultural Research for Northern Sweden (NJV) is located at the Umeå Campus (Northern Sweden). The research station Röbäcksdalen is located about 5 km from campus just south of Umeå. NJV is not engaged in the Veterinary Medicine Programme. [LINK](#)

The Swedish Centre for Animal Welfare, SCAW. According to a directive from the government, VHF is responsible for this centre. SCAW has three primary functions within the area of animal welfare; to give expert advice, to support research, and to arrange education. [LINK](#)

Research facilities are presented in 4.1.3. - 4.1.4.

Collaborative centres and projects. VHF is engaged in a number of collaborative centres and interdisciplinary research projects, programmes, networks, platforms and portals. They all collaborate with external partners. [LINK](#)

1.1.5.2. The University Animal Hospital (UDS)

The UDS facilities are presented in detail in 4.1.4. UDS was formed in January 2007 when, in a reorganisation, the clinical activities at KV were moved to a separate unit placed directly under the Vice-Chancellor. During 2016, an external commission assigned by the Vice-Chancellor evaluated the activities at UDS. This survey resulted in a series of recommendations, the foremost being that the formal description of the mission of UDS should be changed to explicitly specify the role of UDS in the University's veterinary medical education and research. They advocate, for example, a more cohesive academically controlled clinical activity in UDS, and have given a number of suggestions for how UDS should be governed and managed to allow for the main tasks of academic education and research. The development process is already underway and a process manager who will start working during the summer of 2017 has been appointed. For a summary of the final report in English, see Appendix 1.4. [LINK](#)

1.1.6. Decision, implementation, assessment, revision and communication procedures

The overall responsibility for higher education and research rests with the Riksdag (Swedish Parliament) and the Government. They decide on the regulations that apply to the higher education area. The Riksdag decides which public sector HEIs should exist. The Government can decide whether a HEI has university status.

The public-sector higher education institutions (HEIs) are agencies in their own right that report directly to the Government and the Ministry of Education and Research. One exception is The Swedish University of Agricultural Sciences, which is accountable to the Ministry of Enterprise and Innovation (office of the minister for rural affairs).

All higher education is offered by public sector HEIs or by independent education providers granted degree-awarding powers by the Government. There are 14 public sector universities and 17 public sector university colleges in Sweden. In addition, there are 3 independent HEIs that are entitled to award either all or some third-cycle qualifications and 9 independent education providers entitled to award first-cycle, and in some cases second-cycle, qualifications.

The regulations that govern higher education institutions

Higher education in Sweden is governed by the *Higher Education Act* ([LINK](#)) and the *Higher Education Ordinance* ([LINK](#)). The *Ordinance for the Swedish University of Agricultural Sciences* includes qualification descriptors for the Degree of Master of Science in Veterinary Medicine ([LINK](#)).

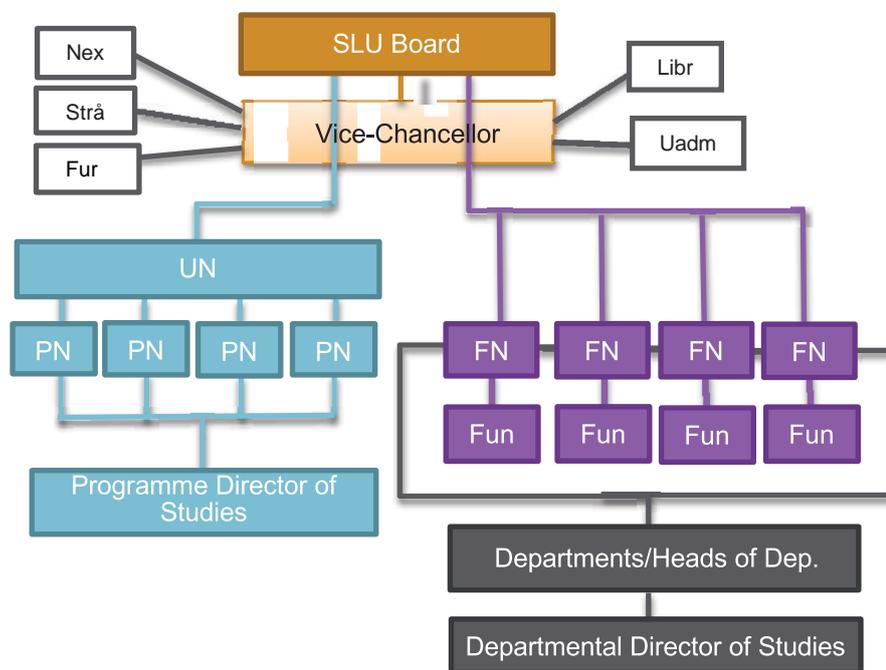
Within the parameters of the Higher Education Act and the higher Education Ordinance, the HEIs are relatively free to decide on their own organisation, allocation of resources and course offerings. The system is based on the principle of management by objectives.

The Swedish Higher Education Authority

UKÄ (the Swedish Higher Education Authority) is accountable to the Ministry of Education and Research, and exercises supervision of the HEIs, which means ensuring their compliance with the statutes and regulations that apply to higher education. UKÄ reviews the quality of higher education and the efficiency of the use of resources and public funding at the HEIs.

SLU Governance and Management

An HEI is governed by a board. The governing board is responsible for ensuring the effective management of the HEI and for planning its future development. It is ultimately responsible for all the affairs of the institution. These boards consist of a chair and no more than 14 other members. Eight of the members are external members appointed by the Government based on proposals from the HEI. The Government always appoints the chairperson of the board and the board then elects a vice-chairman. The Vice-Chancellor must always be a member of the board



UN = The Board of Education, PN = Programme Board, FN = Faculty Board, Fun = Postgraduate Board, Nex = Board for admission of excellent teachers, Strå = Study Social Council, Fur = Council of Postgraduate Studies, Uadm = University Administration, Libr = Library.

Fig. 1.3. Organisational chart showing the decision-taking, supportive and executive bodies engaged in first, second and third cycle education.

University Board

The SLU Board is the highest decision-making body at SLU and usually meets six times a year. At these meetings, the Board decides on matters of a more general nature, e.g. on the allocation of funding and the content of the annual report and budget documents. Most decisions, however, are delegated to the four Faculty boards. Decisions on issues not reserved for the board, or delegated to the Faculty boards, are taken by the Vice-Chancellor. The Vice-Chancellor in turn delegates authority to the head of university administration to decide on matters in that field.

There are three delegations of authority at central level:

- The Board's delegation of authority: Organisation and division of responsibility in relation to the SLU Board and bodies that report directly to it. [LINK](#)
- The Vice-Chancellor's delegation of authority: Organisation and division of responsibility in relation to the Vice-Chancellor of SLU and members of staff who report directly to the Vice-Chancellor. [LINK](#)
- Delegation of authority for the university administration (*in Swedish only*): Organisation and division of responsibility within the university administration.

The four faculties have their own delegations of authority (only available in Swedish).

Vice-Chancellor

A Vice-Chancellor is appointed by the Government to manage a HEI for a maximum of six years with a possibility of a three-year extension. A Pro-Vice-Chancellor is appointed for six years.

Freedom

HEIs enjoy a great deal of freedom within the framework of the regulations laid down by the Government. HEIs can make decisions about their organisation, allocation of funding, quality assurance, course and programme content, number of places on courses and programmes, admission and enrolment procedures, new professorships, research focus and contract education.

Management Group

The Management Group has the task of promoting quality, relevance and collaboration in research, education and environmental monitoring and assessment at SLU. The Group meets every second Monday. It is a forum for discussion of overall in-house issues, university-wide strategies and future issues. It also provides decision-making support to the Vice-Chancellor and the deans.

The Management Group consists of the Vice-Chancellor; the Pro-Vice-Chancellor (also responsible for first and second cycle education); the Deputy Vice-Chancellors for Environmental Monitoring and Assessment, External Relations, and International Relations; the four Deans; the head of University Administration; the head of the Division of Communication; and the Chair of Sluss (the Joint Committee of Student Unions at SLU).

Board of Education (UN)

UN is a general body for the University that handles strategic issues intended to support, coordinate, stimulate and develop first and second cycle education. *See below.*

Council of PhD Education (Fur)

Fur is a joint university body dealing with overall strategic issues with several aims: to support, coordinate, stimulate and develop doctoral education.

Council for Environmental Monitoring and Assessment (Fomar) - not shown here

Fomar is the coordinating body for SLU's environmental monitoring and assessment.

Student Welfare Council (Strå) and the Student Welfare Groups

Strå is a joint university body that works with first and second cycle student welfare issues. On every campus there is a Study Welfare Group for student welfare issues at local level.

Council of Researchers (For)

For is a forum for dialogue between researchers and the Vice-Chancellor on strategically important research issues.

Library Council (Bir)

Bir deals with all strategic issues concerning the library's activities. The council is made up of representatives of the university management, the faculties and the library, as well as student representatives.

Faculty Administration

Under the Rector, the **Dean** (“dekanus”) is the Chief Executive of the Faculty responsible for the planning and administration of activities at the Faculty. This is a full-time position. The Dean and Deputy Dean are appointed by the Vice-Chancellor, following a nomination by the Faculty's Electoral Assembly.

The Faculty's highest decision-making body is the Faculty Board. In support of this, there are a number of committees and subcommittees that constitute advisory and preparatory bodies for the Faculty Board. Members of the Faculty Board and Appointments Board are elected by the Faculty's Electoral Assembly, while members of other committees and subcommittees are appointed by the Faculty Board or by the Dean.

The Dean chairs the **Faculty Board**, with eight more representatives from the academic staff and three from the students (incl. PhD students). There are also two substitute members from the academic staff, and an additional (maximum) three (advisory) representatives from outside the University (e.g. from profession, industry, public agencies). The staff associations (“unions”) are entitled to attend the Faculty Board meetings. The Faculty Director and the Faculty Secretary are also present at the Board meetings.

One of the academic members of the Faculty Board is appointed Deputy Dean (“prodekanus”). Additional Associate (Vice) Deans, normally three, one responsible for first and second level studies, one responsible for research and third level studies, and one handling third stream activities, are appointed by the Dean. The Dean, Deputy and Associate Deans, a student delegate and the Faculty Director form the Faculty Board Executive Committee, which is an advisory function to the Dean.

The Faculty Office gives administrative and secretarial support to the Dean and the Committees.

The Higher Education Act states that students have the right to be represented in the bodies that takes decisions affecting their studies. This means that students (first, second and third cycle) are represented in most Faculty organs. The veterinary profession, the industry, governmental and non-governmental organisations are represented in some of the Faculty organs, i.a. in the Faculty Board and in the Committee for Research and Extension.

The Head of Department (prefekt) is the person responsible for the planning and administration of the scientific and educational activities at departmental level. The Head of Department is appointed by the Dean.

Framework for education

The rules and guidelines that are most relevant to teachers and students are summarised in the regulations for education. [LINK](#).

There are a number of education-related decisions taken by the Vice-Chancellor, the University Board and the UN. SLU's highest decision-making body on issues relating solely to education is UN. SLU's educational organisation also includes programme boards, joint councils and programme directors of studies.

University Level - The Board of Education (UN)

The UN consists of a chairperson, 5 teachers/researchers and 2 student representatives. The members and the deputies are appointed for a period of 3 years. The chair is appointed by the Vice-Chancellor. The teachers/researchers and their personal deputies are appointed by the Vice-Chancellor, following the proposal of the election committee. The student representatives are appointed by Sluss, the collaborative body for the student unions at SLU. An external member may be appointed by the Vice-Chancellor after consultation with the deans. The chairpersons of the Programme Boards are adjunct members of UN. The staff organisations are entitled to be present and make representations.

The duties of the UN with regard to education at Bachelor's and Master's level are:
to be responsible for how the education shall be included in and contribute to the realisation of SLU's strategy,
to be a general body for the University that is tasked with handling strategic issues intended to ascertain quality, and to support, coordinate, stimulate and develop education at Bachelor's and Master's level, and to assign duties to the programme boards in order to do so,
to make proposals, on an annual basis, for the decisions of the University Board,:

- as appropriate, the establishment and discontinuation of degree programmes,

to submit proposals to the Vice-Chancellor for:

- educational commissions and the annual allocation of direct government funding to faculty boards and to provide general comments and proposals with regard to joint operations within the reporting area.
- the number of students to be admitted into programmes and the single-subject courses offered.
- the suspension (temporary freeze on admissions) of a degree programme; proposal submitted as appropriate,

to comment on issues or, where appropriate, to draft proposals for other decisions to be taken by the University Board or the Vice-Chancellor,
to decide on:

- which subjects are to be offered at the University without being main fields of study,
- principles of prioritisation for the range of single-subject courses offered,
- guidelines, policy documents and action plans at Bachelor's and Master's level,
- programme syllabuses,
- remuneration levels for courses to be applied by the programme boards,
- semester dates

to grant additional persons entitlement to be present and make representations at meetings, as required.

VHF – Programme Board for education in Veterinary Medicine and Animal Science (PN-VH)
 PN-VH members are appointed for a 3-year period. PN-VH is composed of at least 4, but no more than 7 teachers and 3 student representatives. There must be 2 group deputies for the teachers. Four of the teachers and the group deputies are appointed by the Faculty Board for VHF, which also appoints one of the 4 teachers as chair. The other faculty boards may appoint one teacher each to be a member of PN-VH. The student representatives are appointed by Sluss. PN-VH appoints its own deputy chair. PN-VH can decide whether others are entitled to be present and to make representations at meetings. PN-VH has thus invited the programme directors concerned and an SLU library representative to the Board. The Faculty Board has decided that the Associate Dean of first and second cycle education is the chair of the PN-VH.

The duties of the programme boards are:
to submit proposals to the UN, in consultation with the faculty boards, for the strategy for education within their area of responsibility, in the event of the revision of the University's strategy,
to submit proposals to the UN on

- the programmes offered and the number of students admitted,
- the programme syllabuses, and changes to these, where necessary,

to decide each year on the course dates to be offered,
to appoint a Programme Director of Studies for each programme who has the qualifications and authority stipulated in the guidelines established by the Vice-Chancellor,
to decide on

- admissions to the latter part of programmes,
- course syllabuses,
- remuneration levels for programme courses and single-subject courses in accordance with the instructions of the UN,
- issues relating to admissions to programmes with local admissions,

to ensure that degree programmes and single-subject courses maintain high quality standards and in this respect to take initiatives and be responsible for the regular evaluation of programmes.
 The UN and relevant faculty boards must be informed of the results.

to provide a statement to the appeals board in relation to the rejection of an application for credit transfer, and
to grant additional persons entitlement to be present and make representations at meetings, as required.

Programme Directors of Studies and Programme Committees

The Programme Directors of Studies – one for each programme - are appointed by the Programme Board for a 3-year period. The duties include being responsible for internal and external contacts relating to the specific educational programme, following up and preparing changes to the programme, providing study guidance to students and making decisions on “minor changes” and on specific individual student matters. There is also a Deputy Programme Director appointed to the Veterinary Medicine Programme.

The duties of the Programme Director of Studies are:

- to develop the academic progression and quality of the programme;
- to represent the programme in collaborations both within and outside SLU;
- to consult with student representatives appointed by Sluss and with heads of departments or the representatives of the departments concerned appointed by the heads of department;
- to draw up the programme syllabus and course schedule within the given financial parameters;
- to decide on minor revisions to existing course syllabuses for courses within the area of responsibility;
- to follow up, analyse and report to the Programme Board (PN) on the programme’s academic progression and the students’ results, from both a qualitative and quantitative perspective;
- to provide guidance and information about the programme and to provide information about and refer students to other student services available within the University;
- to give their opinion on credit transfer of courses for individual students;
- to decide on exemption from compulsory courses for individual students, and
- to give their opinion on admissions to the latter part of programmes and changes of specialisation within programmes.

The VHF Board has decided to recommend the programme directors to establish a ***Programme Committee*** to support them in their work. The present committee of the Veterinary Medicine Programme includes the Programme Director of Studies and her deputy, 8 representatives of departments engaged in the programme, 2 representatives of the students, 3 external sector representatives (The Swedish Board of Agriculture, the National Food Agency and the Swedish Association of Professional Veterinary Clinics) and 2 administrative officers.

Departmental Director of Studies

At each department, there is a Departmental Director of Studies with responsibility for firsta and second cycle education. He or she is delegated tasks by the Head of Department. The departmental directors of studies within the Veterinary Medicine Programme are members of the Programme Committee.

Communication – “top down” and “bottom up”

Information and consultation are central parts of the decision-making process. Employees, students, and external stakeholders are therefore represented in virtually all decision-making bodies within SLU, including the University Board and the faculty boards. The students are entitled to representation when decisions or preparations are made that have bearing on their courses or programmes or the situation of students. Through their representatives, employees, students and external stakeholders can be kept informed, influence the decisions made and initiate questions when needed. An important part of the communication is consequently achieved in direct contact with the various stakeholders who can then use their own channels to disseminate the information further.

The VHF Deans’ group meets monthly with the heads of departments (Prefektråd). The Departments/Sections have staff meetings regularly, often once a week or every two weeks.

- There are several *electronic information channels* at SLU, some focus on specific target groups;
- SLU has separate websites for the public and external stakeholders [LINK](#), for employees [LINK](#), for prospective and active students [LINK](#) and for library services [LINK](#).
 - There are also faculty [LINK](#), department and student union websites.
 - Sections of the websites are also available in English.
 - All minutes of boards and committees are public and can be accessed by staff through SLU's website for employees.
 - Internal newsletters for different target groups, e.g. to Programme Directors of Studies, and Deans' letters to VHF staff – [example](#)
 - The Vice-Chancellor and his deputies have their own blog section – [LINK](#)
 - The electronic staff magazine “Resurs” is published regularly - [LINK](#)

These are examples of the bidirectional communication and consultation routes within SLU and the VHF. The most important one – meeting between individuals – has been considerably strengthened after the 2014 move to VHC, where most of the VHF staff and students are found “under one roof”.

1.2. Comments

The formation of VHF in 2004 and, especially, the relocation of most of the departments to VHC 2014 has led to an increased collaboration between individual researchers and scientific disciplines, and to an important competence and resource enhancement. The move of three educational programmes from Skara to Uppsala in 2015 also increased the collaboration between the Faculty's education programmes and gave a more efficient use of resources.

It is a strength that students, employees and external stakeholders participate in the management of the University and faculties at all levels. However, the level at which actual decisions are taken has shifted upwards in the new education organisation, which means that students and staff now do not have the same influence at programme level as before.

The University's active endeavor to introduce detailed rules and guidelines of education that apply to the entire University - and thus a broad variety of subjects, courses and programmes - has pros and cons. The specific content and requirements of the Veterinary Medicine Programme sometimes leads to unnecessary compromises and “special solutions”.

Since 2014, decision-making and management of the education takes place outside and parallel to the faculty organisation. As the faculty has the financial responsibility, this set-up is perceived as impractical and incongruous.

1.3. Suggestions for improvement

The separation of UDS from VHF has resulted in undesirable effects for teaching and research. The Faculty pays a significant amount each year as "compensation for access" to UDS but has a limited influence on strategic decisions. There is an urgent need and a considerable potential for increased cooperation between VHF and UDS, both for teaching and for research. In the future, UDS should again be part of the faculty organisation. See Appendix 1.4. [LINK](#)

2. FINANCES

2.1.1. Description of the global financial process of Swedish HEIs

85% of the funding for the operations of the HEIs comes from the public purse. The remainder comes from private funding agencies and financial revenues. The Government issues public service agreements on an annual basis detailing the obligations of the HEIs.

2.1.1.1. Funding for first and second cycle courses and programmes

The funding for first and second cycle courses and study programmes is based on the number of full-time equivalent (FTE) students and the annual performance equivalent. The amount of funding varies depending on the disciplinary domain.

2.1.1.2. Funding for third cycle programmes and research

Funding for third cycle programmes and research is specified in the public service agreements

for HEIs. Part of the state funding comes via the government research funding bodies. Many HEIs receive external funding from foundations, local governments, and the private sector.

2.1.1.3. Student finance for students studying in Sweden

The Swedish system of student finance is designed so that higher education is accessible to all those who can benefit from it. Tuition at HEIs in Sweden is free-of-charge for Swedish students and for students from the European Economic Area (EEA) and Switzerland. See 7.1.6.1.

2.1.2. Description of the financial process of the Establishment

SLU's operations are financed by direct Government funding, fees and external grants and contracts. The allocation of the Government funds is decided by the University Board.

SLU's operations are directed by a large number of targets set by the Government, the Riksdag, and by SLU's management. The Higher Education Act forms the basis for the University's operations and the targets in this act therefore strongly guide the University.

In September, the Budget Bill is submitted from the government to the Riksdag, which decides on the state budget in November and December. The Government will then decide on the Budget Directives (appropriation directions) in the latter half of December. The Budget Directives set the amount of Government grants available to the University, the targets, reporting requirements, assignments and additional organisational governance.

The planning process at SLU is concentrated to the autumn and the University Board decides on the assignments and allocation of state funding to faculties and accounting areas (i.e. education, research, etc.) in November. One of the goals of the process is that planning and budget work at faculty and department level should be completed before the next fiscal year begins.

Most of the direct Government funding is transferred to faculties and departments and, as far as possible, major central provisions are avoided. For example, administration and libraries, are instead funded through a surcharge (currently 15 % of salary costs, see 2.1.3.) charged at departmental level. Externally funded activities may therefore be responsible for their share of the University-wide activity.

SLU's budget is built from below. Based on the faculties' allocation of appropriations and the University Board's budget directions, the departments set up budgets for their operations for the coming fiscal year. The departments' budgets create the Faculty budget and the faculty budgets create the University's budget. The Vice-Chancellor finally determines the University's budget and the Board is informed in February.

Government grants 2016

For the period 2016-2018, the University's assignment in first and second cycle education is set at 12 000 student FTEs, i.e. an average of 4 000 per year.

The total 2016 allocation from the Government was 190 M€ distributed on the following accounting areas;

- first and second cycle education 54.2 M€
- research and postgraduate education 117.7 M€
- environmental monitoring and assessment 17.8 M€

Within the University, the state grants are distributed to the four faculties according to their assignment in first and second cycle education (VHF 1 003 student FTEs), basic grants for research and research performance-related grants, and to environmental assessment projects.

Depending on how resource-intensive courses are, remuneration is paid according to seven different levels decided by UN. Design – part of the Landscape architects programme – has the highest remuneration level, while veterinary medicine has the second highest compensation, 18.4 T€ per annual performance equivalent.

As a result of the internal budget process, the University Board and the Vice-Chancellor decided to allocate 48.4 M€ to the VHF;

- first and second cycle education 21.8 M€
- research and postgraduate education 26.4 M€
- environmental monitoring and assessment 0.2 M€

The VHF receives earmarked education allocations for TUVET - Supplementary education for veterinarians with degrees from countries outside EU/EEA and Switzerland (7 FTE, 0.4M€) and the BSc Equine Science programme (85 FTE, 2.0M€). The Swedish Centre for Animal Welfare (SCAW) is also financed via earmarked state funds (0.53 M€). Moreover, VHF has the Government's request to report its efforts in the areas of "One Health" and Antibiotics resistance.

The Faculty Board/Dean allocates course assignments and remuneration for the Veterinary Medicine Programme to the departments responsible. Compensation per FTE student varies depending on the type of training included in the course. VHF also allocates state grants for third cycle education and research to the departments.

2.1.3. Overhead on revenues from services and research grants

SLU, like all Swedish HEIs, applies a common model for the sharing of indirect costs. Application of the model means that costs for university and faculty-based support are distributed to the departments so that all financiers contribute to the costs for administrative, technical and infrastructure support.

University and faculty collective (indirect) costs such as university management, faculty management, university administration, the library and some other activities such as work-related healthcare, administrative systems and premises services, are allocated to each department on the basis of three different distribution keys: salary costs, number of full-year students and premises area.

The **University's indirect costs** for 2017 are covered by a percentage withdrawal based on salary costs including payroll expenses:

- First and second cycle education: 14.5 percent.
- Research and third cycle education: 15.9 percent.

In addition, each department pays a fee of 1 337 €/FTE student to cover central university costs for student administration and infrastructure.

Costs for **faculty-based support** for 2017 are covered by a percentage withdrawal based on salary costs including payroll expenses:

- First and second cycle education: 3.7 percent.
- Research and third cycle education: 2.0 percent.

Costs for **premises services** (e.g. security, depreciation IT network) are covered by a fee per square metre which, for 2017, is set at 13.5€/m².

The 2017 **library remuneration** for research and postgraduate education is covered by means of a fee of 3.2 percent for direct salary costs including payroll expenses. In addition, the fee for student library services is 463€/FTE student.

2.1.4. Annual tuition fee for national and international students

Tuition at higher education institutions in Sweden is free of charge for Swedish students and students from the European Economic Area (EEA) and Switzerland. In general, students who are citizens of other countries are required to pay application and tuition fees. SLU charges a tuition fee of SEK 260 000 per academic year for the Veterinary Medicine programme. So far, there has not been any fee-paying students attending the programme.

2.1.5. Estimation of the utilities and other expenditures directly paid by the official authority and not included in the expenditure tables

Costs for water, electricity, gas, fuel, etc. are all included in the operating costs and costs of premises paid by the VHF and the Departments.

2.1.6. On-going and planned major investments for developing, improving and/or refurbishing facilities and equipment, and origin of the funding

Following the recent move to VHC, no major investments are underway. See Chapter 4.

2.1.7. Forecast expenditures and revenues for the next 3 academic years

No major alterations are forecast. The rise in number of VHF students (mainly veterinary nurse programme) will lead to an increase of the allocation for first and second cycle education.

2.1.8. Description of how and by expenditures, investments and revenues are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

The details have been described above, see 2.1.2. Apart from that description, these issues are handled in a similar way as other decision-making, consultation and information issues within SLU and have been summarised in Chapter 1.1.6.

Exchange rate used 1 € = SEK 9.50

Table 2.1.1. Annual expenditures VH Faculty during the last 3 fiscal years, 1000 €

| Area of expenditure | 2016 | 2015 | 2014 | Mean |
|---------------------------|---------------|---------------|---------------|---------------|
| Personnel | 31 250 | 31 419 | 31 565 | 31 411 |
| Operating costs | 15 614 | 16 001 | 18 268 | 16 628 |
| Cost of premises | 13 268 | 13 559 | 12 270 | 13 032 |
| Equipment, depreciation | 2 530 | 2 536 | 1 836 | 2 301 |
| Joint provisions/Overhead | 7 206 | 7 255 | 4 726 | 6 396 |
| Total expenditure | 69 870 | 70 770 | 68 664 | 69 768 |

Table 2.1.2. Annual revenues VH Faculty during the last 3 fiscal years, 1000 €

| Revenues source | 2016 | 2015 | 2014 | Mean |
|-------------------------------------|---|---------------|---------------|---------------|
| Public authorities | 46 271 | 46 571 | 46 669 | 46 504 |
| Tuition fee (standard students) | NA | NA | NA | NA |
| Tuition fee (full fee students) | 0 | 0 | 0 | 0 |
| Other services | 8 047 | 8 157 | 6 768 | 7 657 |
| Research grants | 13 483 | 13 505 | 13 616 | 13 535 |
| Research and postgrad educ (ext) | 3 943 | 4 038 | 2 428 | 3 470 |
| Strategic investments / initiatives | 667 | 635 | 635 | 646 |
| Continuing Education | Included in "Other services" | | | |
| Donations | Included in "Research and postgrad educ (external)" | | | |
| Total revenues | 72 411 | 72 906 | 70 116 | 71 811 |

Table 2.1.3. Annual balance between VH Faculty expenditures and revenues, 1000 €

| Fiscal year | Total expenditures | Total revenues | Balance |
|-------------|--------------------|----------------|---------|
| 2014 | 68 664 | 70 116 | 1 452 |
| 2015 | 70 770 | 72 906 | 2 136 |
| 2016 | 69 870 | 72 411 | 2 541 |

Table 2.1.4. Annual expenditures UDS during the last 3 fiscal years, 1000 €

| Area of expenditure | 2016 | 2015 | 2014 | Mean |
|---------------------------|---------------|---------------|---------------|---------------|
| Personnel | 11 586 | 11 288 | 10 952 | 11 275 |
| Operating costs | 4 946 | 5 246 | 5 890 | 5 361 |
| Cost of premises | 4 455 | 4 402 | 4 134 | 4 330 |
| Equipment, depreciation | 857 | 946 | 598 | 800 |
| Joint provisions/Overhead | 1 759 | 1 702 | 1 583 | 1 681 |
| Total expenditure | 23 603 | 23 583 | 23 158 | 23 448 |

Table 2.1.5. Annual revenues UDS during the last 3 fiscal years, 1000 €

| Revenues source | 2016 | 2015 | 2014 | Mean |
|--------------------------------|---------------|---------------|---------------|---------------|
| Public authorities | 7 273 | 7 176 | 6 220 | 6 890 |
| Clinical & Diagnostic services | 16 544 | 14 524 | 14 015 | 15 028 |
| Other sources | 82 | 62 | 201 | 115 |
| Total revenues | 23 899 | 21 763 | 20 436 | 22 033 |

Table 2.1.6. Annual balance between UDS expenditures and revenues, 1000 €

| Fiscal year | Total expenditures | Total revenues | Balance |
|-------------|--------------------|----------------|---------|
| 2014 | 23 158 | 20 436 | -2 722 |
| 2015 | 23 583 | 21 763 | -1 820 |
| 2016 | 23 603 | 23 899 | 296 |

2.2. Comments

The Faculty management and the Departments have a good and constructive dialogue about economy and financing. However, we still have the perception that the University centrally - and even parts of the Faculty - has difficulty in understanding and accepting that the Veterinary Medicine Programme (with licensing and EU directives) is costly. The annual contribution of the programme to basic functions today is close to 5 M € (UDS, Swedish Livestock Research Center, the slaughterhouse, etc.). The University management is now conducting a special inquiry into these costs, which is welcomed.

Furthermore, the costs for the premises used for the Veterinary Medicine Programme are significant, because of the basic requirements for biosafety, occupational safety and animal welfare. Thus, the allocation for the actual course implementation becomes relatively small, which in turn requires varied course remuneration levels depending on the degree of practical elements and resource requirements, especially with regard to clinical settings.

At all Swedish Universities, including SLU and VHF, the allocation of funding and costs is made to two totally dominant areas, education and research. Between them there is an 'iron curtain' - funds and costs must not be transported between education and research or vice versa. This is perceived as an obstacle to the effective use of resources.

With regard to externally funded research, VHF has been successful, although the external sources for veterinary medicine and animal science research are limited. External funding today accounts for 40% of the faculty's costs for research, see Table 10.1.5.

The 2014 relocation to VHC resulted in a number of extraordinary costs in addition to the actual moving costs; double rents, extra premises customisation, investments in equipment etc. Revenues also decreased as regular operations for some time "slowed down". This has affected the balance sheet for both VHF and UDS, 2014 and 2015 are consequently not "normal years".

2.3. Suggestions for improvement

See Comments.

3. CURRICULUM

3.1.1. Educational Aims of the Veterinary Medicine Programme

The curriculum is designed, resourced and managed to ensure that the graduates' competencies are fully compliant with the EU Directive 2005/36/EC as amended by Directive 2013/55/EU and its Annex V.4.1. For the complete syllabus document, see Appendix 3.1. [LINK](#)

3.1.1.1. Veterinary Medicine Programme, 330 ECTS

The academic degree title awarded is Degree of Master of Science (MSc) in Veterinary Medicine. The programme syllabus, which is now evaluated, was approved on 5 June 2007, the latest change is valid from the academic year 2013/2014. On 12 October 2016, a new syllabus was approved, which will take effect as of the admission of new students in autumn 2017.

3.1.1.2. Learning outcomes

General learning outcomes

The general learning outcomes common to all first and second cycle courses and study programmes are described in the Swedish Higher Education Act (Chapter 1, Sections 8 and 9).

Specific learning outcomes for a Degree of Master of Science in Veterinary Medicine

In accordance with the Annex to the Ordinance for the Swedish University of Agricultural Sciences, the student shall fulfil the following learning outcomes for a Degree of Master of Science in Veterinary Medicine:

For a Degree of Master of Science in Veterinary Medicine, the student shall have

- demonstrated the knowledge and skills required to work autonomously as a veterinary surgeon.

Knowledge and understanding

For a Degree of Master of Science in Veterinary Medicine, the student shall have

- demonstrated knowledge of the disciplinary foundation of the field and insight into current research and development work as well as the links between research and proven experience and the significance of these links for professional practice,
- demonstrated both broad and specialised knowledge in the field of veterinary medicine,
- demonstrated insight into the conditions applying to animal management, its function and interaction with the environment and society, both nationally and internationally, and
- demonstrated knowledge of economics, organisation and statutory provisions that are of significance for the field of veterinary medicine.

Competence and skills

For a Degree of Master of Science in Veterinary Medicine, the student shall have

- demonstrated the ability to diagnose the most frequent illnesses and injuries of animals autonomously and to undertake appropriate medical and surgical treatment in basic veterinary medicine,
- demonstrated the ability to initiate and undertake measures in preventive veterinary care,
- demonstrated the ability to identify problems and take the measures needed to comply with social requirements regarding cruelty to animals, the control of infectious diseases and food safety,
- demonstrated the ability to account in speech and writing for interventions and treatment outcomes with those concerned and to document them in accordance with the relevant statutory provisions,
- demonstrated specialised skills in discussing new data, phenomena and issues in the field of veterinary medicine with various audiences on a disciplinary basis and also to review, assess and use relevant information critically,
- demonstrated the capacity for teamwork and collaboration with various constellations, and
- demonstrated the skills required to take part in research, development and evaluative activities or to work autonomously with other specialised tasks in the field of veterinary medicine and so contribute to the development of the profession and professional practice.

Judgement and approach

For a Degree of Master of Science in Veterinary Medicine, the student shall have

- demonstrated the ability to adopt a holistic view in his or her professional practice and make judgements on the basis of a disciplinary approach while taking into account aspects relating to the health of human beings and animals as well as economic, environmental and ethical considerations,
- demonstrated the ability to adopt a professional approach to animals and their owners,
- demonstrated the ability to identify his or her own limitations in professional practice autonomously, and
- demonstrated the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Detailed learning outcomes for the Veterinary Medicine Programme

Within the framework of the learning outcomes of the degree, SLU has further stated a number of learning outcomes for the Veterinary Medicine Programme. See Appendix 3.1. [LINK](#)

3.1.1.3. Contents and outline

The courses included in the Veterinary Medicine Programme have been approved by PN-VH. The contents and learning outcomes of the courses are stated in the course syllabi.

A Degree of Master of Science in Veterinary Medicine is awarded after completed course requirements (passed courses) of 330 ECTS, according to the following:

- 262 ECTS of compulsory programme courses
- 17 ECTS of courses on different groups of animal species
- 6 ECTS of elective programme courses
- 15 ECTS degree project for first-cycle studies
- 30 ECTS degree project for second-cycle studies

| | AUTUMN | | | SPRING | | |
|-------------|---|---|-------------------------------------|--|--|--|
| Yr 1 | VM0054 Veterinary anatomy and introduction 8 ECTS | VM0048 Basic medical biology 20 ECTS | | VM0055 Structure and function of the body systems 32 ECTS | | |
| Yr 2 | VM0056 General mechanisms of disease 30 ECTS | | VM0057 Special pathology 14 ECTS | VM0058 Population medicine 16 ECTS | | |
| Yr 3 | VM0097 Anim welf, legisl epizot 5 ECTS | VM0089 Pharmacology and toxicology 14 ECTS | VM0067 Food safety 11 ECTS | VM0087 Lab 3 ECTS | EX0700 Bachelor degree project in veterinary medicine 15 ECTS | VM0098 Clinical anatomy, introd. to clinical studies and animal nutrition 12 ECTS |
| Yr 4 | VM0072 Introduction to clinical studies 30 ECTS | | | Clinical rotation 30 ECTS | | |
| Yr 5 | Clinical rotation 30 ECTS | | | VM0090 VPH with epidemiology and epizootiology 7 ECTS | Species-oriented electives VM0091, VM0092 or VM0095 17 ECTS | Discipline oriented electives VM0094 VM0093 VM0096 6 ECTS |
| Yr 6 | Degree project in Veterinary Medicine 30 ECTS | | | | | |

Fig 3.1. Schematic presentation of the Veterinary Medicine Programme curriculum.

3.1.2. Legal constraints and degree of autonomy – who decides?

The Ordinance for SLU includes qualification descriptors for the Degree of Master of Science in Veterinary Medicine. Details about the programme are determined by SLU as described in Chapter 1.1.6.

3.1.3. Coordination between subjects and courses

In a 330 ECTS programme, there are obvious risks for curricular overlaps, redundancies, omissions and even lack of consistency. If present, deficiencies must be identified and corrected. The Programme Director of Studies is the person responsible for the continuous coordination between subjects and courses. In the Programme Committee, departmental directors of studies meet regularly to identify and rectify curricular weaknesses. Students attending the courses are also expected to take part in this work – and they do. Apart from observations from current courses, important sources for information/input are course and programme evaluations as well as external reviews. Depending on the extent of the actions needed, decisions may be taken immediately at course/department level or be handled by the PN-VH. It should be stressed that student members participate in these Boards. See also Chapter 11.1.1.

3.1.4. Preparing for the clinical rotations

Before the students are allowed to perform examinations and tests on live animals, they practice on dummies in the clinical training centre (KTC) and on organ specimens. Thereafter, they perform examinations and test procedures on teaching animals (dogs, horses and cattle), animals of SLU's own herds (cattle and pigs), borrowed animals (sheep) and finally on patients.

In the beginning of the first year the students are given an overview of the veterinary profession in the Swedish society covering organisation, responsibilities and challenges, different areas of work, ethical considerations, etc. They attend small group discussions, tutored by senior students, about their views on the roles and responsibilities of veterinarians (*VM0054 Veterinary anatomy and introduction*). In the beginning and at the end of the first year there are sessions with a senior lecturer in animal ethics and veterinarians to discuss various ethical aspects of the profession (*VM0054* and *VM0055 Structure and function of the body systems*).

During the first year (*VM0055*), the students visit the faculty goat herd (in VHC) several times in small groups, both to get an introduction to handling that specific species and to relate findings in the examination of the animals to physiological processes.

In addition, during *VM0055*, the students also follow clinical work at the ambulatory or small animal clinics at UDS for one day or evening. Some students also arrange visits at extramural clinics. At the end of the academic year, the students have small group discussions, tutored by older students, about their impressions from the clinical visits and submit a written report.

The course "*VM0098 Clinical anatomy, introduction to clinical studies and animal nutrition*" (12 ECTS) during year 3 gives an introduction to the clinical consultation and clinical work, with anatomy as underlying basis for clinical examination and diagnostic imaging. Now the students begin to train clinical examinations. The course includes practical exercises, e.g. on taking ECG and blood pressure in dogs, and performing clinical examinations, including palpation exercises, in horses and dogs.

Introductory lectures are given on clinical work and clinical consultation including communication and professional development. There is also an exercise in which the student observes how a veterinarian communicates with an animal owner. The observations are summarised in a written report and discussed with fellow and senior students. Thereafter, the students perform role-plays in clinical scenarios, where they may act as animal owner, veterinarian or as observer, practicing communication and giving feedback (six scenarios). At the end of the course, another role-play with three different cases is performed by an actor and a veterinarian while the students observe, note their observations and then discuss their impressions with the others involved, including the presenters and clinically active veterinarians. The exercises are mandatory, but examination of the students' ability to perform clinical examinations is conducted the following semester, during the course *VM0072 Introduction to clinical studies*.

The course *VM0098* also covers an introduction to diagnostic imaging. Lectures are given on techniques, methods and safety as well as interpretation of radiographs. Students work independently with web-based exercises, followed by mandatory follow-up seminars. They have a web-based MCQ test on technical and safety aspects and a station exam mainly covering practical aspects, consisting of radiographs in which the students have to identify normal anatomical structures as well as understand technical aspects of radiographic methods.

The course "*VM0072 Introduction to clinical studies*" (30 ECTS) is given during the autumn semester of year 4, immediately before the beginning of the clinical rotation year. The course provides basic knowledge and proficiency for the student to be able to assimilate theoretical and practical education in clinical sciences. It contains theoretical components such as lectures and seminars as well as practical exercises in the form of laboratory, handling, examination and sampling methods, basic training of anaesthesia induction, and handling and administration of pharmaceuticals. The exercises are carried out on organs and on live animals but also on dummies and via simulation programmes in KTC. Gynaecological examination of horses, cattle and dogs is included in the course, as is obstetrics, with practical training of assistance during parturition. Models, cadavers and organs are used for the latter. Operating room procedures and suturing techniques are taught and then practised in KTC.

Table. *Subsections of the course VM0072 Introduction to clinical studies.*

| Title | ECTS |
|---|-------------|
| Surgery, medicine and comparative reproduction | 13.0 |
| Clinical propaedeutics - practical training and examination | 10.0 |
| Clinical pathology incl. general medicine | 2.0 |
| Anaesthesiology | 2.0 |
| Poultry diseases | 1.0 |
| General surgery | 1.0 |

There are six practical sessions in ruminants:

- Handling and clinical examination (cattle and sheep);
- Circulatory and respiratory systems;
- Digestive system;
- Claw investigation and blood sampling techniques;
- Rectal examination of urinary and reproductive organs;
- Udder examination including bacterial analysis

There is one practical session in pigs:

- Handling, clinical examination and drug administration

Furthermore, there are seven practical sessions in horses:

- Handling and clinical examination;
- Oropharyngeal examination;
- Hooves (2 sessions);
- Rectal examination of abdominal and reproductive organs;
- Eye examination;
- Bandaging

In small animals (mainly dogs) there are eight practical sessions:

- Handling and clinical examination;
- Dermatological examination;
- Reproductive and digestive systems;
- Eye examination;
- Dental examination;
- Lameness evaluation;
- Sampling and drug administration;
- Bandaging

The final examination in clinical propaedeutics includes theoretical and practical elements.

During the latter, the students rotate between a number of stations;

- clinical examination of cattle;
- clinical examination of horses;
- clinical examination of small animals;
- operating room procedures, including surgical instruments and suturing techniques.

3.1.5. Characteristics of the clinical rotation

A graphical presentation of the clinical rotation year is presented on page 21.

VM0070 Pig diseases, 3 ECTS

The course is 2 weeks long and 8-10 students are taught at a time. It consists of a mixture of lectures, seminars and four to five farm visits. The farm visits are led by 1-2 teachers. Before, during and after the visits students are expected to act as veterinarians. This means that they pack the equipment and medicines that will be needed, they interview the owners and perform practical investigations and treatments. On return to VHC they take care of the equipment, clothes and boots, and after one of the visits they write a report to the owner.

VM0071 Ruminant medicine, 9 ECTS

The course is divided into two periods of 2 + 3 weeks, and 19-24 students are taught at a time. The students are divided into 2 groups of approximately 10 students. They will train how to

diagnose and treat various diseases in cattle and sheep via seminars and group discussions, demonstrations, practical and clinical training. A special section during the course deals with the diagnosis and treatment of mastitis. During the practical sessions, taking place either at VHC or Lövsta, the student group is mostly taught by 1 teacher, whereas 2 teachers are usually present during work with patients at the Ruminant Clinic. Students perform the clinical examinations, treatments and write medical reports of the patients at the clinic.

VM0076 Small animal surgery and medicine, 15 ECTS

The course is 8 weeks long (excluding the 2 week examination period at the end of the clinical year during which the theoretical examination of this course takes place) and 19-23 students, divided into 3 groups, are taught at a time. Students spend time at different stations: the outpatient medicine clinic (6-7 students, 1 KV veterinarian and also UDS veterinarians), the outpatient surgery clinic (6-7 students, 1 KV veterinarian and also UDS veterinarians), the emergency unit (3-4 students and 1 veterinarian from KV or UDS) and the minor surgery clinic (3-4 students and 1 KV veterinarian). They have one on-call week during which each student should participate in at least 4 shifts of on-call duty (evenings, nights and weekends), and a so-called seminar week. The activities include clinical training in obtaining a case history, clinical examination, making a diagnosis, suggesting treatment strategies, performing medications and other treatments and keeping records. The course also includes performing a variety of surgical procedures under supervision as well as emergency and critical care procedures. Approximately 75% of the time in the clinics is hands-on training whereas the remaining 25% (daytime periods with UDS veterinarians and the shifts of on-call duty) have a variable degree of hands-on versus observation.

VM0074 Equine surgery and medicine, 9 ECTS

The course is 5 weeks long (excluding the 2 week examination period at the end of the clinical year, during which the theoretical examination of this course takes place) and 16-19 students divided into 2 groups are taught at a time. Teaching includes seminars, demonstrations and training of clinically practical skills on teaching animals and at the equine clinic. At the stationary care unit there is 1 veterinarian (from KV or UDS)/2-3 students. Each student has the main responsibility for at least one patient per day and to monitor, medicate and keep records for this patient. He/she also participates in additional examinations and treatments that are performed during the day on this patient. At the outpatient clinic it can be 1 veterinarian/3-5 students. The group joins up with the veterinarian, who then appoints students to be responsible for different patients. The responsible student performs much of the hands on work on the patient whereas the others observe and give a helping hand if needed. All students will participate in at least four rounds of emergency services (evenings and weekends).

VM0069 Ambulatory clinic, 7.5 ECTS

The course is 4 weeks long + 3 shifts of on-call duty. A total of 10-15 students are taught at a time, 3-4/car. Students start the day with packing the equipment and preparing the cars before it is time for departure, usually around 09:45. On the farms, students take case history and perform clinical examinations and treatments, under supervision of the veterinarian. Return time depends on the day's workload, but is usually between 14:00 and 17:00. Students then clean instruments and other equipment, refill medical supplies and write records before the day ends.

VM0075 Reproduction, 6 ECTS

The course is 3+1 weeks long and 13-19 students, sometimes divided into two groups, are taught at a time. Practical sessions and clinical work are supervised by 1-2 teachers. The students learn to diagnose, treat and prevent various reproductive conditions. The training is provided in the form of seminars, group discussions, demonstrations, and theoretical and practical group briefings. Students learn gynaecological health checks in dogs, horses and cattle, including rectal examination in the latter two species. The practical training includes working with organs, healthy and diseased animals at VHC and at Lövsta (cattle).

VM0073 Diagnostic imaging, 3 ECTS

The course is 2 weeks long and usually 9-10 students are taught at a time. Teaching is provided as seminars, rounds, theoretical and practical exercises and web-based case exercises. Students participate in practical exercises concerning radiation safety methods, take radiographs of a dog

and a horse and practice writing radiology reports. They also, on one occasion, participate and observe when veterinary technicians/ nurses take radiographs of dog and horse patients. Furthermore, they participate (or observe) the work of an UDS veterinarian to interpret and respond to radiographs of patients.

VM0077 Diagnostic pathology, 4.5 ECTS

The course is 3 weeks long and 8-10 students are taught at a time. Teaching is based on necropsies of clinical cases and includes the de facto necropsy work, presentation of necropsy cases and discussing plausible pathogenesis during rounds and writing of necropsy reports. The students also have a briefing on how to collect and handle organ samples for histopathology. Each student also works more in-depth with one of his/her cases and presents it in a case seminar. The daily practical necropsy is supervised by one teacher and a senior pathologist is responsible for the student rounds. There is also a number of digital cases with macroscopic pictures and scanned histopathology slides that the students can work with in the event of a lack of clinical cases.

VM0078 Food safety, meat inspection, 3 ECTS

See below (Chapter 3.1.6.)

3.1.6. Veterinary public health and food hygiene

The students visit slaughterhouses twice during years 2 and 3, both times in groups of 25 together with a teacher. In the course “*VM0058 Population medicine*” they go to a slaughterhouse in southern Sweden and in “*VM0067 Food safety*” they visit Lövsta slaughterhouse for an introduction to where they will later have their practical training in food inspection and control.

During the course “*VM0078 Food safety, meat inspection*” (3 ECTS) focus is on food safety and its importance for the consumer. Emphasis is on food safety in slaughterhouses and on processed foods of animal origin. The students work in groups of 3-5 together with one teacher. During one week at Lövsta slaughterhouse, the students receive practical training to perform verification of food chain information, *ante-mortem* inspection including animal welfare monitoring, and *post-mortem* inspection of carcasses and organs. Further, they carry out sampling to assess hygienic quality of carcasses, practice inspection as a control method, and train to perform a risk assessment of the entire meat chain and to develop a HCCAP plan.

During the exercises, the students practice to assess abattoir waste and animal by-products and how an audit is performed. They practice meat inspection and assessment using case scenarios. The combination of practical and “case” training means that the student after the course will be able to assess and make a decision on the handling of live animals and the use of meat and animal products in accordance with applicable regulations and how to conduct inspections and audits of slaughterhouses. One study visit in a meat processing plant is made during the course. The visit focuses on manufacturing of meat products and food safety. All teaching is performed with regard to public health, ethical and, to a certain extent, also environmental aspects.

3.1.7. Selection for electives

Please note that syllabus changes are underway, this description describes the study year 2015-2016 – see 3.1.11.

The first 9 semesters of the programme are common to all students, while the spring semester in year 5 is partly elective. There are three different species-oriented courses, each 17 ECTS, of which students attend one. The species-oriented courses are followed by three elective subject courses, each worth 6 ECTS. Students can choose one of these. They have the opportunity to transfer credits for SLU courses that are not part of the veterinary programme or courses taken at other HEIs instead of following one of the latter elective courses. The topic of the course must be of relevance for the veterinary profession.

Seats at the species-oriented courses are allocated by percentage: Small animal clinical science, 40%; Equine clinical science including food safety, 20%; and Production animal science including food safety, 40%. First, second, and third choices have to be specified by the student in

an application the preceding autumn semester. If there are more first-choice applicants than places, balloting is used.

During the subsequent elective subject courses there are 20% more seats than there are students. Seats are allocated by percentage: Medical sciences, 38%; Surgical sciences, 28%; and Infectious diseases, 33%. Depending on whether the student got his/her first, second, or third choice as regards species-oriented courses, he/she is assigned a merit in the allocation of subject courses. This means that those who have not got their first choice of species-oriented course have very high chances to get their first choice of subject course.

3.1.8. External practical training - EPT

All students perform a mandatory self-directed practice for at least 15 hours (2 days) on a cattle, sheep or pig farm before or during the course “*VM0058 Population medicine*” in year 2. The practice should be performed with a commercial farm, or in a school with its own livestock (secondary school) or equivalent, and give a good insight into Swedish animal production. Students should contact farms themselves. The course leader can also give advice on suitable farms. The student submits a brief written description of the farm, type of animal husbandry and tasks performed. The practice is followed up by a mandatory group work and subsequent discussion in which the student’s impressions of livestock, animal care and handling as well as animal health and welfare are addressed.

On a voluntary basis, students can follow veterinarians at work (*VM0055 Structure and function of the body systems; VM0098 Clinical anatomy, introduction to clinical studies and animal nutrition*) described in 3.1.4 at extramural clinics rather than at SLU.

The elective course “*VM0092 Production animal clinical science including food safety*” includes two weeks of mandatory external practical training in a veterinary practice with a focus on production animals. The programme provides names and contact details of around thirty approved veterinary practices that are willing to host veterinary students for EPT. The students make contact with the practices and get internship on a first-come, first-served basis. Students can also suggest other practices that can be approved by the course leader, provided they have a substantial number of production animal patients. The student will participate in the clinical activities during these weeks under supervision. Participation refers to auscultation. If desired and practical, the student can also attend on-call duties. A logbook shall be filed and approved by the responsible teacher.

During the elective course “*VM0095 Small animal clinical science*” it is possible for students to choose a voluntary placement at a small animal clinic outside SLU for a maximum of 2 weeks. Participation refers to auscultation. If desired and practical, the student can also attend on-call duties. During the EPT, students shall select a case that is documented and reported orally and in writing.

The elective course “*VM0091 Equine clinical science including food safety*” includes a four-week stay at the UDS horse clinic. It is possible to replace one of these weeks with a voluntary practice at another horse clinic or at a district veterinary practice with sufficient horse cases and an experienced equine veterinarian. Participation in the work of the clinic refers primarily to auscultation, but when it is practicable, the student can perform basic measures under the supervisor's supervision. If desired and practical, the student can also attend on-call duties. During the EPT, students shall select a case that is documented and reported orally and in writing. In connection with the oral case presentations, experiences from the EPTs are also discussed in groups.

Course leaders are contact persons for EPT on their respective courses. Students are insured through SLU during their studies, which also applies during EPT.

3.1.9. Documentation of core practical/clinical activities

In most courses, the teachers record the attendance and achievements of the students. The records are handed over to the course administration for them to be compiled and reviewed.

Clinical Rotation

VM0070 *Pig diseases, 3 ECTS*

VM0071 *Ruminant medicine, 9 ECTS*

VM0075 *Reproduction, 6 ECTS*

VM0073 *Diagnostic imaging, 3 ECTS*

VM0077 *Diagnostic pathology, 4.5 ECTS*

VM0078 *Food safety, meat inspection, 3 ECTS*

Teachers/UDS veterinarians are responsible for keeping records of the students' attendance and achievements. The records are compiled and reviewed by the course administration.

VM0069 *Ambulatory clinic, 7.5 ECTS*

UDS veterinarians are responsible for keeping records of the students' attendance and achievements. Records are compiled by the teachers and handed over to the course administration.

VM0074 *Equine surgery and medicine, 9 ECTS*

The student is responsible for keeping a *specialty designed record sheet* where the attendance is recorded and certified by the teacher. The student hands in the record sheet to the course administration at the end of the course,

VM0076 *Small animal surgery and medicine, 15 ECTS*

At the beginning of the course, a *specialty designed record sheet* where all compulsory tasks are listed, is handed out. On the sheet, attendance is recorded and the completion of listed tasks is certified by the teacher. The student is responsible for this being done. When all the tasks are completed and signed, the student hands in the record sheet to the course leader/administration.

Species-oriented electives

VM0091 *Equine clinical science including food safety, 17 ECTS*

VM0095 *Small animal clinical science, 17 ECTS*

A record sheet as in VM0076; including EPT.

VM0092 *Production animal clinical science including food safety, 17 ECTS*

Teachers are responsible for documenting the students' attendance and achievements. EPT is documented and certified by the local supervisor. During the EPT the student shall also keep a log book over (at least) one patient/herd that was handled. The student shall describe and reflect on the measures that were implemented and recommendations given, and also on the communication between veterinarian and animal owner.

3.1.10. Decisions and development of the core curriculum

See also Chapter 1.1.6.

3.1.10.1. How and by whom?

Requests for change are commonly raised by teachers and/or students. If deemed necessary, PN-VH appoints a working group which collaborates with different departments and with student representation to suggest improvements. Often, external stakeholders are invited.

“**Major**” changes of the programme curriculum (e.g. new syllabus) are decided at University level by the UN. The PN-VH is responsible for preparing and submitting supporting documentation.

“**Medium**” changes of the programme, including course syllabi, are decided by the PN-VH.

“**Minor**” revisions related to individual courses during the academic year may be decided by the Programme Director of Studies.

3.1.10.2. Communication to staff, students and stakeholders

Staff and students and stakeholders are represented in the decision-making bodies, and external stakeholders also in the advisory groups. In addition to the official information routes, communication within the University is carried out via Faculty newsletters, Heads of Departments' weekly staff meetings, and the Students' Unions. Information, including minutes of meetings, from all University and Faculty decision-making bodies is also available on the website “Information and services for employees at SLU”. Furthermore, the Programme

Committee is a key player when it comes to communicating information regarding the programme to teachers and students.

3.1.10.3. Implementation

Implementation of changes of the core curriculum is the responsibility of the PN-VH, the Programme Director of Studies with support from the Programme Committee, the Departmental directors of studies, and the respective course leaders.

3.1.10.4. Assessment and revision

Monitoring and evaluation of the curriculum is carried out in several ways. Essentially, assessments are made continuously by teachers and students, and with longer intervals by the University and by external bodies (e.g. ESEVT, UKÄ). For details, see 11.1.1

Initiatives for revision of the curriculum may come from course, department, faculty and university levels – or from outside the University. Depending on the extent and scope of the proposed change(s), revisions are handled and decided on as described above (Chapter 3.1.10.1.).

3.1.11. A new curriculum from 2017

The study programme in veterinary medicine approved by the Faculty Board in 2007 included a number of changes towards an education based on a better coordination between courses and integration between subjects. Some of the main features were;

- A tenth semester with three elective species-oriented clinical courses followed by three elective subject-oriented courses.
- Two degree projects, one for the Bachelor's degree and one for the Master's degree.
- An intention to abolish “species borders and discipline borders”, aiming at more integration between subject areas and more cooperation between departments.

When introduced in 2007, the curriculum was considered well adapted to the needs of society and industry. The introduction of the Bologna process was important. Nevertheless, ten years later, time has come for the introduction of a new curriculum. Some important reasons are that there has been some concern regarding the students' ability to achieve the Day One Competences laid down in EU directives and the SLU regulation. The level they reach during the first 4.5 years (before the elective species-oriented courses in year 5) may be a bit low. After a species-oriented course (horses, small animals or livestock) they reach the requirements regarding the species in question, but may still be somewhat weak in the others. Furthermore, it has been difficult for the departments, particularly KV, to meet the challenges of teaching courses at different levels in parallel. The number of teachers (physical persons rather than total teacher time) and access to teaching facilities are not sufficient. Another reason is that, due to the limited number of places in the different species-oriented courses, all students cannot attend the course they prefer. This has resulted in stress among students, which has been amplified when individual employers have signalled that they require a certain species-oriented course. This may in the end reduce the newly graduated veterinarians' opportunities to work in areas other than those linked to the elective courses they have taken during the veterinary education.

In October 2016 the UN decided on a new syllabus for the Veterinary Medicine Programme, (see Appendix 3.2. [LINK](#)) and the students admitted in 2017 are studying according to this new syllabus. As the study programme is still under development, a detailed version of the curriculum is not yet available. A major difference is that there will no longer be a Bachelor's degree project course within the programme. The general skills that are now trained in this course will be retained in a new course, “Scientific approach, 9 ECTS”, held during the third year. The remaining credits will be moved to pre-clinical subjects. Another major change is that the elective species-oriented courses will be omitted and time and credits moved to the compulsory clinical courses.

In a separate course for independent work in veterinary medicine, G2E, 15 credits will be available for students who want to finish their veterinary studies after the basic level and take out a general Bachelor's degree in veterinary medicine.

A detailed comparison between the 2007 and 2017 curricula is presented in Appendix 3.3. [LINK](#)

Interim solution

An interim solution for the fifth year spring semester is already in place 2016-2017. This means a greater integration between the species-orientated courses and elective subject courses, respectively. The objectives and contents are common for the three courses to a large extent with only a smaller species oriented part. The number of seats has been increased, so that all students can take the course they wish to choose.

3.1.12. Day One Competences

In September 2016, VHF and the PN-VH initiated a project to comprehensively review the way in which the Swedish veterinary education meets the requirements outlined in Annex IV, List of recommended essential competences at graduation: “Day One Competences” (taking the directive for SLU and the EU Directive 2005/36 as amended by Directive EC and 2013/55 / EU and its Annex V.4.1 into consideration). The aim was to break down the overall “Day One Competences” descriptions to measurable goals that can be evaluated. Furthermore, how these measurable goals are actually documented and examined/evaluated today was screened. Several meetings with teachers have been held during the project and student representatives have participated in the work. A detailed report has been produced which enables the PN-VH to identify areas that work well in order to assure Day One Competences - and it ensures that areas that may require strengthening are identified. This will now form the platform for continued renewal work regarding curriculum, course descriptions and educational goals. See Appendix 3.4. [LINK](#)

Key to the headings in Tables 3.1.1. – 3.1.6.

A: lectures; B: seminars; C: supervised self learning; D: laboratory and desk based work, E: non-clinical animal work; F: clinical animal work; G: others

Table 3.1.1. Curriculum hours in each academic year taken by each student

| Academic years* | A | B | C | D | E | F | G | Total |
|------------------------|--------------|------------|------------------|------------|------------|------------|-----------------|------------------|
| Year 1 | 311 | 111 | 49 | 143 | 12 | | 5 ² | 631 |
| Year 2 | 363 | 87 | 37 | 67 | 15 | | 28 ³ | 597 |
| Year 3 | 327 | 101 | 283 ¹ | 55 | 21 | | 3 ⁴ | 790 ¹ |
| Year 4 Semester 1* | 369 | | | 6 | 99 | | | 474 |
| Year 4-5 Clin Rot | 35 | 149 | 18 | 38 | 96 | 729 | 32 ⁵ | 1 097 |
| Year 5 Semester 2* | 111 | 79 | 52 | 40 | 36 | 92 | 80 ⁶ | 490 ⁷ |
| Year 6 | | | 800 ³ | | | | | 800 ⁸ |
| Total | 1 516 | 527 | 1 239 | 349 | 279 | 821 | 148 | 4 879 |

* An academic year may be subdivided into 2 semesters

¹ Including 4 weeks á 40 hours for working with the bachelor degree project; ² Auscultation; ³ 5 hours auscultation and 23 hours study visits; ⁴ Study visits; ⁵ 30 hours auscultation and 2 hours study visits; ⁶ EPT, auscultation; ⁷ Including the average hours taken as electives, see table 3.1.3; ⁸ Exam project estimated full time, 20 weeks á 40 hours

Table 3.1.2.a. Curriculum hours in EU-listed subjects taken by each student

| Subjects | A | B | C | D | E | F | G | Total |
|--|---|----|-----|-----|----|------------------|-----------------|-------|
| Basic Subjects | | | | | | | | -- |
| Medical physics | | | | | | | | -- |
| Chemistry (inorganic and organic sections) | | | | | | | | -- |
| (Animal biology, zoology and) cell biology | 14 | 14 | | | | | | 28 |
| Feed plant biology and toxic plants | | | | | | | | -- |
| Biomedical statistics | 31 | | 4 | | | | | 35 |
| Basic Sciences | | | | | | | | |
| Anatomy, histology and embryology | 139 | 42 | 69 | 127 | 10 | | | 387 |
| Physiology | 86 | 14 | | 12 | 8 | | | 120 |
| Biochemistry | 35 | 32 | | 19 | | | | 86 |
| General and molecular genetics | 8 | 6 | | 6 | | | | 20 |
| Pharmacology, pharmacy and pharmacotherapy | 56 | 15 | 11 | 8 | | | | 90 |
| Pathology | 127 | 53 | | | | | | 180 |
| Toxicology | 21 | 1 | | | | | | 22 |
| Parasitology | 30 | 2 | 12 | 12 | | | | 56 |
| Microbiology | 75 | 9 | 9 | 39 | | | | 132 |
| Immunology | 54 | 6 | | 4 | | | | 64 |
| Professional communication | 2 | 15 | 16 | 3 | | | 10 ¹ | 46 |
| Professional ethics | 10 | 6 | | | | | | 16 |
| Animal ethology | 20 | 2 | | 4 | | | | 26 |
| Animal welfare | 20 | 9 | 6 | | | | | 35 |
| Animal nutrition | 13 | 3 | 6 | | | | | 22 |
| Clinical Sciences | | | | | | | | |
| Obstetrics, reprod. and reprod. disorders | 55 | 26 | | | 39 | 11 | | 131 |
| Diagnostic pathology (incl. Clin pathology) | 42 | 3 | | 30 | | 88 | | 163 |
| Medicine and surgery incl. anaesthesiology | 269 | 63 | 9 | 2 | 40 | | | 1033 |
| Clinical practical training* | | | | | | 620 ² | 30 ³ | |
| Preventive medicine | 36 | 3 | | 15 | | | | 54 |
| Diagnostic imaging | 25 | 34 | 19 | 10 | 6 | 10 | | 104 |
| State veterinary services and public health | 41 | 9 | 1 | 3 | | | | 54 |
| Vet. legislation, forensic med. and certif. | 28 | 2 | 4 | | | | | 34 |
| Therapy* | Included in "Medicine and surgery..." and "Clinical practical training" | | | | | | | |
| Propaedeutics * | 35 | 2 | 3 | | 84 | | | 124 |
| Animal Production | | | | | | | | |
| Animal production and breeding | 25 | 5 | 3 | | | | | 33 |
| Economics | | | | | | | | -- |
| Animal husbandry | 26 | 13 | | | 15 | | 23 ⁴ | 77 |
| Herd health management | | | | | | | | -- |
| Food Safety and Quality | | | | | | | | |
| Inspection and control of food and feed | 22 | 15 | 14 | | | | 1 ⁴ | 52 |
| Food hygiene and food microbiology ⁵ | 47 | 8 | 24 | 19 | | | 2 | 100 |
| Practical work** | | | | | 32 | | | 32 |
| Food technology incl. analytical chemistry | 11 | 2 | | | | | 2 ⁴ | 15 |
| Legislation related to FS&Q ⁶ | 5 | | 5 | | | | | 10 |
| Professional Knowledge | | | | | | | | |
| Professional ethics and behavior | 2 | 2 | | 6 | | | | 10 |
| Veterinary legislation | 6 | 1 | | | 3 | | | 10 |
| Veterinary certification and report writing ⁷ | | | | 1 | | | | 1 |
| Communication skills | | 18 | | 2 | | | | 20 |
| Practice management and business | 1 | | | | | | | 1 |
| Information literacy and data management | 16 | 25 | 12 | 7 | | | | 60 |
| Degree Projects | | | | | | | | |
| Bachelor | | | 160 | | | | | 160 |
| Master | | | 800 | | | | | 800 |

*in/of all common domestic animal species; **in places for slaughtering and food processing plants

¹ Auscultation; ² Part of the time at the Small Animal Clinic and Horse Clinic at UDS are with UDS veterinarians, i.e. auscultation; ³ At the Small Animal Clinic with UDS veterinarians, i.e. auscultation; ⁴ Study visits; ⁵ Including food toxicology; ⁶ Hours are not included under Veterinary legislation below; ⁷ This is also included in the courses in Medicine and surgery but the hours cannot properly be separated

Table 3.1.2.b Subject not EU-listed

| Subjects | A | B | C | D | E | F | G | Total |
|-----------------------------------|----|---|---|---|---|---|---|-------|
| Laboratory animal medicine VM0087 | 33 | 5 | | | 9 | | | 47 |

Table 3.1.3. Curriculum hours taken as electives for each student

| Electives ¹ | A | B | C | D | E | F | G | H* |
|--|-----------|-----------|-----------|-----------|-----------------|------------------|-----------------|------------|
| A1 Equine clinical science incl Food safety VM0091 | | | | | | | | 269 |
| Medicine and surgery incl anaesthesiology | 47 | 19 | | | 21 ² | 98 ³ | 80 ⁴ | 265 |
| Food Safety - inspection and control | | 3 | | | | | | 3 |
| A2 Production animal clinical science incl Food safety VM0092 | | | | | | | | 283 |
| Medicine and surgery incl anaesthesiology | 16 | 17 | | 13 | 22 | 11 | 80 ⁴ | 159 |
| Preventive medicine | 2 | 22 | | 34 | | 24 | | 82 |
| Obstetrics, reprod. and reprod. disorders | 7 | 2 | | | 2 | 6 | | 17 |
| Animal nutrition | 3 | | | | | | | 2 |
| Economics | 1 | | | | | | | 1 |
| Animal husbandry | 5 | | | | | | | 5 |
| Communication skills | 1 | 1 | | | | 4 | | 6 |
| Food safety – inspection & control | | 3 | | | | | | 3 |
| Food safety – food hygiene | | 8 | | | | | | 8 |
| A3 Small animal clinical science VM0095 | | | | | | | | 292 |
| Medicine and surgery incl anaesthesiology | 17 | 28 | | 8 | 25 | 134 ⁵ | 80 ⁴ | 292 |
| B1 Medical sciences VM0093 | | | | | | | | 120 |
| Medicine and surgery incl anaesthesiology | 25 | 16 | 71 | | 3 | | | 115 |
| Professional behavior and ethics | | | | | 5 | | | 5 |
| B2 Surgical sciences VM0094 | | | | | | | | 114 |
| Medicine and surgery incl anaesthesiology | 15 | 29 | 45 | | 15 | | | 104 |
| Veterinary legislation | | 2 | | | | | | 2 |
| Communication skills | | 3 | | | | | | 3 |
| Professional behavior and ethics | | | | | 5 | | | 5 |
| B3 Infectious diseases VM0096 | | | | | | | | 90 |
| Medicine and surgery incl anaesthesiology | 11 | 24 | 40 | 3 | | | | 78 |
| State veterinary service and public health | | 5 | | | | | | 5 |
| Herd health | | 3 | | | | | | 3 |
| Communication skills | | 1 | | | | | | 1 |
| Professional behavior and ethics | | | | 3 | | | | 3 |
| Average no of hours per student | 50 | 62 | 52 | 20 | 33 | 92 | 80 | 389 |

*H: hours to be taken by each student per subject group

¹ each student should take one of A1-A3 and one of B1-B3; ² incl 3 hours Reproduction; ³ incl 26 hours emergency duty with UDS veterinarians; ⁴ external practice, auscultation; ⁵ approximately 50% together with UDS veterinarians which means that it can be auscultation

Table 3.1.4. Curriculum days of External Practical Training (EPT) for each student

| Subjects | Minimum duration (weeks) | Year of programme |
|-----------------------------------|--------------------------|-------------------|
| Production animals (pre-clinical) | 0.4 | 1-2 |

Table 3.1.5. Clinical rotations under academic staff supervision (excluding EPT)

| Types | List of clinical rotations (Disciplines/Species) | Duration (weeks) | Year of programme |
|--------------------|--|------------------|-------------------|
| Intra-mural (VTH) | Small animals / Dog and Cat | 8 | 4 & 5 |
| Intra-mural (VTH) | Equine / Horse | 5 | 4 & 5 |
| Intra-mural (VTH) | Ruminant medicine / Cattle, Sheep and Goat | 5 | 4 & 5 |
| Intra-mural (VTH) | Pig diseases / Pig | 2 | 4 & 5 |
| Intra-mural (VTH) | Reproduction / Horse, Cattle, Pig, Dog, Cat, Sheep, Goat | 3 | 4 & 5 |
| Ambulatory clinics | Ruminants & Horse | 4 | 4 & 5 |
| FSQ & VPH | Food safety | 2 | 4 & 5 |
| Electives | See Table 3.1.3. Courses A1, A2, A3 | 9-11* | 5 |

*Varies depending on EPT or not

Table 3.1.6. Optional courses proposed to students (not compulsory)

| Subjects | A | B | C | D | E | F | G | Total |
|--|---|---|----|---|-----|---|---|-------|
| Agriculture in practice - Animal husbandry 1 | | 5 | 45 | | 150 | | | 200 |

3.2. Comments

Ten years interval - now is the time to establish a new curriculum. The outline of the new syllabus has been decided, but the design of the clinical period (104 ECTS) has just started; it will be based on the recently completed Day One Competences review and the observations and advice from the ESEVT visitation. One important and challenging task will be to match the curriculum and available resources. The development process will involve external stakeholders.

The experiences from the 2007 curriculum has resulted in a marked reduction of electives in the new curriculum and also in the old one for an interim period. We have found that 5.5 years is just enough to provide a broad and solid in combination with an in-depth (elective) degree project.

Experiences from the 2007 curriculum also clearly showed the value of active supervision with feedback during the clinical training, and the training of generic skills (communication, meeting the client, etc) and these components will be brought forward and strengthened in the new curriculum.

One potential “weakness” with the Swedish programme would be the sparse teaching in “business and entrepreneurship”. However, this topic is not prioritised by the external stakeholders.

3.3. Suggestions of improvement

See Comments.

4. FACILITIES AND EQUIPMENT

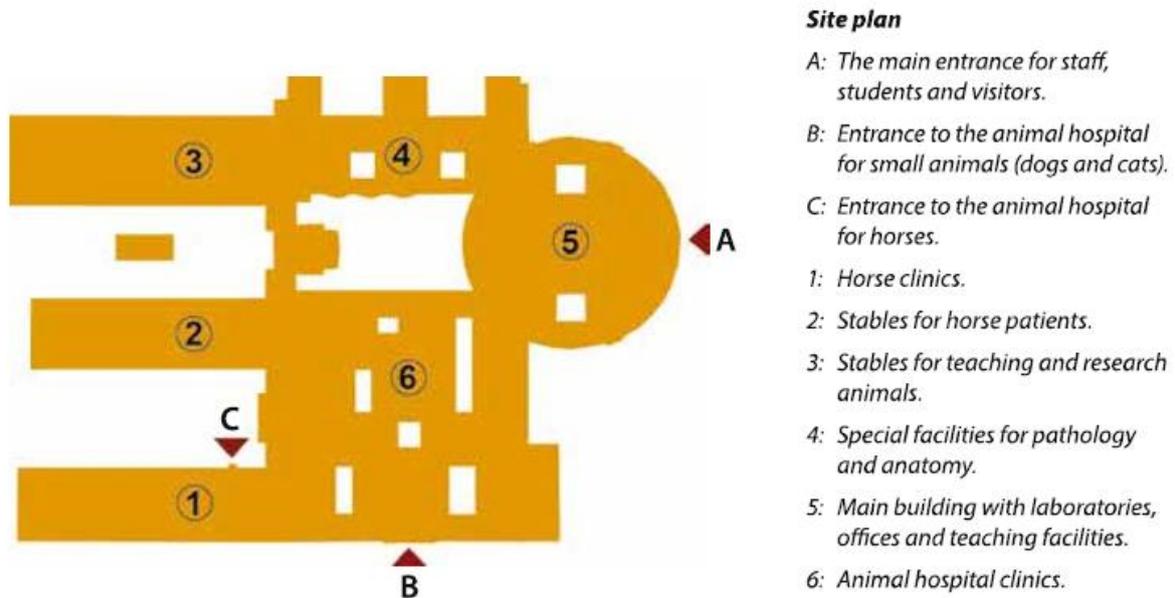
SLU’s main campus is Ultuna, five kilometres south of central Uppsala. This is the location for the Vice-Chancellor’s office and most of the administration. The faculties of Natural Resources and Agricultural Sciences, and of Veterinary Medicine and Animal Science are also located at Campus Ultuna. Many of SLU's degree programmes are given here.

4.1.1. Facilities used for the veterinary curriculum

SLU’s Veterinary Medicine Programme is, with a few exceptions, located in Uppsala, and primarily at the Centre for Veterinary Medicine and Animal Science (VHC), but also at Lövsta where the Swedish Livestock Research Centre and the slaughterhouse are situated.

VHC - the Centre for Veterinary Medicine and Animal Science

VHC is the new (2014) shared workplace of the departments from VHF and UDS. It is also the central focus for the thousand or so students who follow one of the courses or degree programmes offered by VHF. The building consists of six connected sections. The gross area is 53 100 m² with a floor space of 41 600 m², there are 2 319 rooms of which 391 are offices. A detailed presentation is found in Appendix 4.1. [LINK](#)



4.1.2. Students' and teaching areas in VHC

The entire entrance level of Building (Bldg.) 5 is publicly available. Access to the entrance level of VHC is controlled by the entrance door opening hours Monday – Friday 7.30-17.30. Admission outside opening hours and to other parts of VHC is controlled by access card authorisation. Depending on course attended, students will have access to different parts of the building.

Education Service Office VHC

The 'Education Service Office VHC' is situated in VHC, Bldg. 4 third floor. It is an interdepartmental unit with responsibility for supporting the VHF students and departments with the administration of first and second cycle education.

4.1.2.1. Lecture halls, anatomic theatres and computer labs

Ultuna Campus

The VHC premises are presented below. Within Ultuna campus there are additional resources that can be utilised for the Veterinary Medicine Programme. These include the Aula (508 seats), 32 auditoriums/lecture halls (22-208 seats), 8 computer labs (6-24 seats), 28 group study rooms (4-10 seats) and 3 “student workspaces” (10 seats each). The two latter categories can be booked by students.

VHC

Next to the entrance hall of Bldg. 5 there are five **auditoriums/lecture halls** (40-150 seats, totally 470), two **computer labs** (2x25 seats) and one large “**wet lab**” (60 seats). In Bldg. 4 there are two **amphitheatres** for anatomy and pathology demonstrations respectively.

4.1.2.2. Group study rooms

On the entrance level of Bldg. 5 and in Bldg. 4 there are twenty group rooms for 6-12 persons that are used for teaching and which can also be booked by students using the room booking system. Twelve of the group rooms are equipped with video monitors or projectors, some of them also with PC and microscopy systems.

In the clinical area, close to the stables in Bldgs. 2 and 3, there are two divisible **seminar rooms** with 25+25 seats each and a group room with 16 seats. The students can wear their clinic clothes in these rooms.

4.1.2.3. Premises for practical work

Wet laboratory

Ymer is a laboratory for benchtop experiments handling biological material and chemicals.

Anatomy

In Bldg. 4, the special facilities for anatomy and pathology are located next to each other.

The part of the building where anatomy is taught includes one amphitheatre for 60 students (video equipment) and upstairs six dissection rooms with two tables each (and video screens). For carcasses and organs there is a receiving area, a large frozen storage (-18 °C), a cooled storage, a preparation/thawing room, rooms for specimen preparation and handling (e.g. plastination) and two cooled waste rooms. The passage into the “wet” area includes changing rooms (lockers), laundry and rest rooms.

On the third floor, just outside the “wet” anatomy area, there are three divisible group study rooms (20-24 seats each, video screens), two specimen rooms, and changing rooms (lockers). One of the group study rooms is used for the Sectra IDS7 workstation, see 4.1.7.1.

Pathology

The pathology part of Bldg. 4 includes one amphitheatre for 60 students (video equipment) and two necropsy rooms (one large and one small). For carcasses there is a reception and preparation area, a cold storage, rooms for specimen preparation and a cooled waste room. There is also a veterinary office, a writing room for students, a technicians’ workroom and storage facilities. The passage into the pathology area includes changing rooms (lockers), a hygiene barrier and rest rooms. Histopathology laboratories are situated in Bldg. 5 on the 4th floor.

Clinical Training Centre - KTC

KTC is situated on the third floor of Bldg. 4. There are two rooms for student activities (up to approx. 14 students in each), one observation room/office and one utility room. In addition, there is a 75 m² training room in Bldg. 3. KTC is used by veterinary and veterinary nurse students. See also 4.1.7.1.

Adjacent to the anatomy facility, there is a hall with phantoms for large animal dystocia (calving) training and a room for bench training of large animal gynaecological examination. These rooms are also used for other teaching activities.

Experimental surgery

In Bldg. 6 there are premises for experimental surgery which are also used for practical training of veterinary and veterinary nurse students. The large animal part includes a preparation (anaesthesia) room, an operating theatre and a recovery room. The small animal section comprises a scrub room, a preparation (anaesthesia) room and three operating rooms.

4.1.3. Premises for housing animals

4.1.3.1. Healthy animals

Centre for Veterinary Medicine and Animal Science – VHC (see also 5.1.3.)

VHC Bldg. 3 includes a sealed-off area with separate stables for healthy animals used for teaching and research purposes. There are five stables for horses (total 22 boxes), one large ruminant/horse stable (5 boxes), one large ruminant stable (4 boxes), one tied-cow stable (8 places), one calf/small ruminants stable (6 boxes) and four swine stables (10 boxes each). There is also a large section housing a goat herd and stables for 25-30 dogs.

During the clinical rotation course, three stables are used for incoming ruminant patients. The ruminant clinic has a separate intake for outpatients. Access to the ruminant clinic area is restricted in accordance with the infection prevention and hygiene plan for the building.

Most stables are equipped with spaces for changes of clothing and footwear. Adjacent to the stables is a minor surgical facility, three examination rooms with stocks (e.g. for gynaecological

examination of large animals and for stallion semen sampling), a freezing room, a milking parlour and two small laboratories. There are also spaces for feed storage, for cleaning of animals, and for washing.

The outdoor facilities include a horse walker, seven yards for the dogs, one goat's yard, about 20 paddocks (gravel surface) and two larger pasture areas for large animals (i.e. horses).

The Swedish Livestock Research Centre – Lövsta

The Research Centre was opened in 2012 and is situated 8 km east of the SLU Ultuna Campus. It is a nationally important resource for research and education on dairy cattle, pigs and poultry. Most students at VHF will be trained here at some point during their education. For a detailed presentation of the Research Centre, see Appendix 4.2. [LINK](#)

- The *cattle facility* has room for 300 dairy cattle plus recruitment animals. Milking is performed by a rotary milking parlour and an automatic milking system. The 2016 annual production was 2 725 tonnes of milk with a 10 282 kg ECM average milk yield per cow.
- The *pig herd* comprises 110 sows in integrated production. The pig facility also has 960 slaughter pig places and 96 recruitment places. Approximately 2 500 pigs are fattened for slaughter each year.
- The *poultry facility* allows for research with free-range laying hens, laying hens in cages and broiler chickens. Research with other poultry is also possible.

There are strict infectious disease control rules for visitors. The Swedish Livestock Research Centre is quality and environmentally certified according to the *ISO 9001:2008* and *ISO 14001:2004* standards.

Röbäcksdalen - The facilities at Röbäcksdalen outside Umeå are an important resource for research in forage and in sustainable milk production. The barn, built in 2006, houses 120 dairy cows and recruitment animals of the breed Swedish Red (SRB).

Götala Beef and Lamb Centre - SLU's research facility for beef and lamb production is located just outside Skara. The uninsulated barn can accommodate 48 cows or 84 small calves. The insulated barn has space for 64 animals in 16 boxes with group feeding. In the stable for sheep and lambs there is room for 26 individually kept ewes.

Alnarps Södergård - Just outside Malmö, SLU has two special research facilities, one environment stable and one climate stable which can best be described as a climate chamber.

4.1.3.2. Hospitalised animals

For small animals and horses, see Chapter 4.1.4.1. For ruminants, see Chapter 4.1.3.1.

4.1.3.3. Isolated animals

Small Animal Clinic – UDS, VHC Bldg. 6 - The infectious diseases section is separate from the other activities and has a special changing room area. The section has 20 places and consists of six stables with separate treatment rooms, most stables also have a direct exit to an exercise yard. There is also a "super insulation" area with space for one patient in each stable. These have their own exercise yard and treatment rooms with gas outlets, which facilitates surgery on anaesthetised patient.

Large Animal Clinic (Equine)- UDS, VHC Bldg.2 - There are eight isolation wards with separate entrances from the stable yard. The passages from the clinics to each of the isolation wards include spaces for dressing, equipment, pharmaceuticals, etc. Water supply has check valves, sewage and manure handling is separate and includes decontamination.

4.1.4. Premises for clinics, diagnostic services, etc.

4.1.4.1. University Animal Hospital, UDS (see also Chapter 5.1.4.)

The UDS, which occupies Bldgs. 1, 2 and 6 of VHC, is a necessity for training veterinary students and is a unique facility within Sweden. The premises are designed for the students to actively participate in animal care during the clinical portion of their education. UDS is directly connected to the round building (Bldg. 5), enabling close collaboration between the hospital and the academic departments. Patients in the hospital provide the basis for education, research and development, while academic staff with specialised expertise can participate in clinical activities.

4.1.4.1.1. Small Animal Clinic

The UDS Small Animal Clinic occupies most of Bldg. 6 and is open 24 hours a day all year round. The clinic conducts emergency and planned veterinary care for primary and remitted patients. In 2016, the number of visits to the clinic was 21 000 (74% dog, 25% cat, 1% other). The clinic has about 100 employees of different occupational categories; veterinarians, veterinary nurses, animal keepers and receptionists. The daily work at the clinic also includes veterinary students.

The outpatient clinic has 25 examination and treatment rooms, some of them specially designed and equipped. In addition to the general examination and treatment rooms, the clinic has facilities for internal medicine, surgery, dermatology, cardiology, oncology, orthopaedics, dentistry and reproduction. Suspected infectious cases are referred directly to the infectious diseases intake which has a separate entrance, waiting and treatment area, and a separate ward. The small animal clinic is certified as a cat-friendly clinic; cats are separated from dogs in the waiting rooms, reception rooms and in the ward. At night-time, at least one veterinarian and one veterinary nurse with responsibility for inpatients and emergency services are working. Emergency analyses of samples taken are carried out in the clinic's emergency laboratory.

Patients that need further care or further investigation are hospitalised. The inpatient ward consists of a general and an infectious section. The general section is divided into a surgical and a medical unit and consists of eight stables with a total of 30 places for dogs and 14 for cats. All stables have their own separate treatment room. For cats with feline hyperthyroidism treated with radioactive iodine (I-131), there is a radiation-protected room for two patients.

Isolation and infectious diseases, see 4.1.3.3.

The surgical unit consists of six operating rooms, three of which are intended for outpatient procedures such as castration of cats, extirpation of minor neoplasms, dental treatment and gastro/rectal endoscopy. The dental treatment room has capacity for two anaesthetised patients at a time, and is equipped with two wall mounted dental radiography installations, two fully equipped dental pillar units and a scanner image plate system compatible with PACS. The surgical unit is equipped with a mobile C-arm machine, Siemens Cios Alpha, which can be used for both orthopaedic and interventional surgery such as shunt surgery, and PDA.

To minimise risk to staff working in the operating theatres being exposed to the harmful smoke that occurs e.g. when using diathermy, smoke evacuation units (Maquets Fumovac 900) reduce smoke and aerosol to a minimum. LED operation lighting provides optimum brightness and minimal shading by the operator. For display work, the lamps are also equipped with ENDO light. In the orthopaedic theatre, the lamp is equipped with HD camera with zoom and monitor on the wall, which allows students to follow surgical procedures.

At UDS, work is ongoing to reduce CO² emissions from anaesthetic gases. As part of this, anaesthetic staff are trained in low-flow anaesthesia. The anaesthesia delivery system (Maquet Flow-i), with high requirements for gas dosing systems, respiratory systems and monitoring of ventilation parameters is particularly suitable for this.

The Intensive Care Unit (IVA) is equipped with special apparatuses such as oxygen supply, emergency trolley, infusion pumps, ECG, etc. There is also a blood bank available 24 hours a day.

Rehabilitation is an important part of the treatment of sick or injured animals, especially after orthopaedic or neurological injury. At UDS, a physiotherapist treats patients and provides pet owners with advice and instructions. There are two hydrotherapy treadmills, used for dogs with impaired movement function. The equipment is also used for research projects.

4.1.4.1.2. Large Animal Clinic (Equine)

The Large Animal Clinic has an administrative part with a reception area, offices, waiting room, rounds room, student and staff rooms.

Stables and inpatient areas are mainly located at the west side of the long and wide "large animal stable corridor" while most of the examination and treatment facilities are situated on the opposite east side, in Bldg. 6.

The stables are mainly found in Bldg. 2. Currently, there are five nursing stables for inpatients with places for 25 horses and one outdoor stable with 4 boxes. Further, there are 8 closed isolation boxes for patients with severe infections and two stables with 18 boxes for outpatients. Rooms for treatment and horse care (showers), washes, utility rooms and a feed barn are situated immediately adjacent to the stable area. This part of the clinic also contains an intensive care unit with 6 boxes, stocks and an observation room, and an emergency ward with two boxes and a treatment room with stocks.

Isolation and infectious diseases, see 4.1.3.3.

The areas of the Large Animal Clinic where most advanced examinations and treatments are performed are located in Bldg. 6. Five examination and treatment rooms with stocks, one “dentistry” room, and one room for “minor surgery” are available for outpatient care. The large animal surgical unit has a preparatory/anaesthesia area, scrub rooms, three operating theatres (two for recumbent and one for standing horses) and three recovery boxes. The large animal diagnostic imaging areas accessed from the stable corridor include two radiography, one ultrasonography, one CT, one MRI and one Nuclear Medicine unit.

For orthopaedic and soundness examinations, two lameness investigation areas 40x4 m (Bldg. 1), one riding hall 20x30 m and an indoor lunging area 12x12 m are used. The equipment available for research and clinical work includes state-of-the-art equipment (Qualisys[®], Lameness locator[®], etc.). A high-speed treadmill is used for exercise tests. A farriery and a shoeing stable are situated in Bldg. 1.

For animal management, access to land outside the stables is essential. The entire field west of the buildings is used as pastures for horses. Directly adjacent to the stables are about 20 paddocks and a horse walker. The areas between the stables are used for parking animal transport vehicles and manure management.

Ambulatory Clinic

The offices of the Ambulatory Clinic are situated in Bldg. 2, close to the Large Animal Clinic offices. Equipment and medicine storage rooms, washes and a small “Mastitis lab” are located by the garage in the riding hall building.

Service

UDS has a central sterile supply unit of a high standard where equipment and accessories have been combined to create an effective system for sterile handling of goods from the equine, small animal and ambulatory clinics. The unit consists of one room for cleaning/disinfection and one with equipment for high and low temperature sterilisation. To reduce the risk of contamination, the rooms have different air pressure.

4.1.4.2. Diagnostic services including necropsy

Pathology - The section of pathology at BVF performs necropsies of patients from UDS during the semesters. The necropsies are performed by students on the course “VM0077 *Diagnostic pathology*,” (Clinical rotation year), under supervision of a pathologist/teacher who is also responsible for the case and that a full necropsy report (after histopathological examination) is sent back to the referring veterinarian. BVF also offers a diagnostic service to UDS and the KV on material including tissue samples from live animals. A diagnostic pathology service is also provided to the SLU Biobank (see 4.1.4.4).

Bacteriology, virology and parasitology - For some “routine” diagnostics, the laboratories at nearby SVA (National Veterinary Institute) are consulted. Recently, a MALDI-TOF mass spectrometry, to be used in research projects, routine diagnostics and teaching, was installed at the BVF. Some necropsy samples are now analysed using the MALDI-TOF, which can be used for e.g. microbial identification and strain typing, fungal typing, epidemiological studies, detection of water-borne and food-borne pathogens, detection of antibiotic resistance and detection of blood and urinary tract pathogens.

Animal genetics - The Animal Genetics laboratory provides parental and identity controls for horses and dogs using DNA profiles and DNA tests for a number of genetic disorders and traits, mainly for horses and dogs. They also offer parental controls for pigs by blood typing. Research

is conducted in parallel with these activities, aimed at revealing the background of several genetic disorders and traits.

Diagnostic Imaging Unit - The UDS includes a state-of-the-art unit for diagnostic imaging, including digitised radiographic, ultrasonographic, CT, nuclear medicine and MRI equipment. The number of cases examined by the diagnostic imaging unit in 2016 was 9 377 (3/4 small animals and 1/4 horses). The distribution of cases between procedures was radiography 4 976, ultrasonography 3 704, scintigraphy 180, MRT 213 and CT 304. The unit also has a referral service, giving expert opinion in about 300 cases a year.

Diagnostic Clinical Pathology - The Clinical Pathology Laboratory is part of UDS. The laboratory analyses samples from the clinics at SLU (30%), but mainly from other clinics in Sweden (70%). There is also a minor test load of samples from various research projects. Most samples are from dogs, cats, horses and smaller numbers of samples from cattle, pigs, mice, rats, wildlife and exotic or zoo animals. The annual distribution of analyses include approx.. 8 000 haematology, 18 000 biochemistry, 24 000 endocrinology, and 6 000 cytology samples.

4.1.4.3. FSQ & VPH

Lövsta Kött AB leases SLU's slaughterhouse in Funbo-Lövsta where approximately 26 000 pigs, 6 000 cattle and 5 500 lambs are slaughtered each year. The meat from cattle and sheep are cut, but no further meat processing is performed at the site. The lease agreement includes allocating space for teaching and for students doing practical work in the slaughterhouse. There are observation rooms allowing visitors to view the stable, and the various steps of slaughter and meat cutting without having to enter the production facilities.

4.1.4.4. Others

SLU Biobank is a biorepository for biological material originating from other organisms than humans (animals, plants and microbes). It is the only one in Sweden for animal specimens. The purpose of SLU Biobank is to provide a quality assured infrastructure and routines for the handling and storage of biological samples, as well as to act as a platform for questions concerning sampling, handling and storage of samples. SLU Biobank is a service for the entire SLU and has activities at three sites in Sweden (Uppsala, Umeå and Alnarp), with the main activity at VHC in Uppsala.

4.1.5. Premises for other student-related activities

4.1.5.1. Study and self-learning

Group study rooms and other facilities, which are always (24/7) open for students, have been presented in sections 4.1.2.1-4.1.2.3. Anatomy facilities are also available when students so wish, and on the VHC entrance floor and in the University library there is plenty of seating at tables suitable for work on laptops.

4.1.5.2. Restaurants and cafés

Central Ultuna

Butiken Ulls hus - on the ground floor of Ulls hus. Serves coffee, tea, smoothies and other beverages, as well as pies, salads, sandwiches, etc. Open: Monday-Friday 8-16.

Café Moccado – on the ground floor of VHC. Serves coffee, tea, smoothies and other beverages, as well as pies, salads, sandwiches, etc. Open: Monday-Friday 8-16.

Restaurant Logen - on Almas allé 14. Lunch restaurant. Open: Monday-Friday 8-16.

Ull's restaurant - on Duhrevägen 8. Lunch restaurant. Open: Monday-Friday 9-15.30.

North and South of Central Ultuna

Matverkstan - on Ulls väg 4, close to VMF. Open: Monday-Friday 8-15.

Ultuna Thai kiosk & kitchen - on Ulls väg 25. Open: Monday-Friday 8-18.

Work and meet - on Ulls väg 30A you can buy sandwiches to take out.

Lunch rooms

On the left-hand side within the main entrance to VHC there is a lunch room for students, which can seat fifty. It is equipped with microwave ovens and fridges. There is also a coffee machine as

well as snack and sandwich dispensers, which accept payment by card. At the far end of the atrium in Bldg. 5, there is a public café.

In the campus area there are an additional four student lunch rooms. The UDS also has a lunch room for students undertaking their clinical rotations, which can accommodate 28 persons.

4.1.5.3. Changing rooms (lockers)

The passages for students and staff into the Ymer “wet lab”, the anatomy and pathology facilities, are all provided with gender separated changing rooms (lockers). To enter the stables in Bldg. 3 and the UDS clinics, students and staff have to change into clinic clothes in changing rooms (lockers) situated on the first floor of Bldg. 4.

4.1.5.4. Accommodation for on-call students

In the UDS clinics, there are three overnight rooms for on-call students, two beds each for the ambulatory, small animal and equine clinics.

4.1.5.5. Other

In Bldg. 5 level 2 there is a rest room that can be used in case of acute illness.

4.1.6. Description of vehicles

Student transportation - For transport to extramural facilities, three 9-seats minibuses are used; two 2014 Nissan Nv400 and one 2016 Renault Traffic III.

Ambulatory clinic - There are five cars used at the ambulatory clinic; four VW Caddy Maxi (1 vet + 4 students) and one VW Caravelle (1 vet + <6 students). All cars carry well-equipped mobile dispensaries for 24/7/365 large animal services. For the official veterinarian services at Stockholm-Arlanda International Airport, the Ambulatory Clinic uses a car owned by the Swedish Board of Agriculture.

Live animal transportation - With the exception of some cattle, the clinics do not provide any transport services for sick animals. Most horse owners have their own animal transport vehicles. There is also a well-equipped “large animal ambulance” with trained staff available day and night in the greater Stockholm area.

Cadaver transportation - Closed stainless steel containers are used for the transport of cadavers, organs and biological waste within VHC and from VHC to the incinerator at SVA (500 m away). Hazardous waste (pathology, microbiological, animal hospital) is transported separately.

4.1.7. Description of the equipment used

4.1.7.1. Teaching purposes

Here is a selection of the equipment used in veterinary education, a large part of the equipment is of "standard type" and is therefore not commented on.

Microscopes - There are 168 microscopes, which are shared by two departments (AFB and BVF). Each student may borrow a microscope that they use during the first year histology and, if they so wish, during histopathology courses (which is also digitised). There are also five microscopes with video camera, which can be connected to the monitors in the group rooms. They are used for various kinds of group activities, and can also be used by individual students.

Visualisation Table - In 2014, SLU was the first university in the world to use Sectra’s table for 3D visualisation of radiological images, mainly from CT and MR, for veterinary medical training. The Sectra Visualisation Table is a large, multi-touch medical display with software that facilitates interaction with 3D images of the human body or animals. At SLU it is used by students during courses in anatomy as a complement to dissection exercises and in radiological training. A major advantage of the visualisation table is that the students can study anatomical variations among many individuals without needing to use more dissection material. The table also enables in-depth studies of such structures as vessels and nerves that are otherwise difficult to study. See [LINK](#). SLU’s investment in the visualisation table was financed by funding from the Swedish Research Council (VR).

Clinical Training Centre – KTC is the site where students on the veterinary and veterinary nurse programmes can practice skills with the help of models and other equipment. Training includes e.g. bandaging, IV catheter placement, intubation, anaesthesia machine and monitor use, surgical instrument identification and handling, suturing practice, gowning, gloving and draping, and also the use of a concussion bolt. There are also computers with various digitalised education resources that are not freely available on the Internet. KTC is also used for case simulation exercises. See also Chapter 3.1.4.

Unless booked for a course, KTC is open for drop-in Monday and Thursday 13.00-18.00, with KTC staff attending. During the rest of the week (including weekends), students have access to KTC until 22.30, but have to manage on their own.

4.1.7.2. Clinical services

See Chapter 4.1.4.1. – 4.1.4.2.

4.1.8. Maintaining and upgrading facilities and equipment

Continuous maintenance of buildings and premises is the responsibility of each property owner, primarily Akademiska Hus and SLU. Financing is then provided within the framework of the rental costs. Decisions on, and financing of new investments in buildings depends on the extent and cost of the actions and the property owner concerned. Normally, the costs will be charged in the form of a rent increase.

Routine maintenance and upgrading of equipment and instruments shall be financed within the respective financial framework for education and for research and postgraduate education. Investments in heavier equipment and infrastructure can be made within the framework of regular government funding, but usually they are made through targeted investments within SLU (strategic funds) or through external grants from research councils or foundations.

Depending on the size of the investment, decisions must be made by the Head of Department, the Dean, the Vice-Chancellor or by the University Board / Government. Depreciation time varies depending on the nature and size of the respective investment.

4.1.9. Safety and security

At VHC, there is a mixture of students, employees and animal owners, as well as animals that may be healthy, sick or dead. For safety reasons and to prevent the spread of infections, considerable efforts have been made to ensure that teaching facilities, laboratories, clinics, stables and other premises are available only for those who need them. It has been a challenge to ensure that nobody feels excluded, and yet necessary to limit admission in a modern research and teaching environment where both infectious agents and potentially unpredictable animals are handled.

VHC has over 70 emergency points which have a fire extinguisher and a fire blanket, while over 40 of them also have First Aid kits. A map showing evacuation routes can also be found at each point. There are two assembly points, one just north of the main entrance to the VHC and one outside the UDS small animal entrance. Defibrillators are located in the reception area at the main entrance to Bldg. 5, at UDS's reception and at 3 other places in VHC.

Fire detectors and sprinkler systems are installed in all parts of the VHC buildings.

All departments have trained Fire Safety Agents who are responsible for the coordination of an evacuation of premises in the event of, for instance, fire. All staff must undergo a 2 hr basic training in fire protection including the use of fire extinguishers.

All of VHC is fitted with burglar alarms in the form of detectors mounted on glass partitions, doors, windows, etc. Some detectors are always activated, while some, such as doors, have a timer.

The SLU Security Office organises regularly recurring courses and exercises regarding fire protection, accident prevention, CPR, IT security, etc. Some of these are mandatory. There is also a 24-hour emergency preparedness for major events. The departments are responsible for cooperation with police and rescue services.

4.1.10. Description of how and by whom changes in facilities, equipment and biosecurity procedures are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

These issues are handled in a similar way to other decision-making, consultation and information issues within SLU and have been summarised in Chapter 1.1.6.

4.2. Comments

The renewal that the Ultuna campus has undergone the last ten years with modernisation and densification has provided new opportunities for collaboration within the university.

The VHC is an important boost for the VHF activities, in addition to coordinating laboratory and other resources, we see a whole new dynamic between individual researchers, subjects and departments. The teaching facilities are extremely well suited to meet the demands from teachers and students.

The introduction of sectioning of buildings and training of staff and students regarding biosecurity, risk assessment and security has increased the awareness of these basic activities.

The investments in a slaughterhouse, the Swedish Livestock Research Centre and the Götala Beef and Lamb Centre are essential for future education and research at VHF.

4.3. Suggestions for improvement

Even if UDS is “more” than the needs for the training of veterinary students, there is a need and potential for intensified cooperation both for teaching and research, including the use of facilities.

5. ANIMAL RESOURCES AND TEACHING MATERIAL OF ANIMAL ORIGIN

5.1.1. Strategy for the use of animals and material of animal origin

In January 2007, the Vice-Chancellor of SLU issued a policy document on the use of animals and material of animal origin for teaching purposes. The policy was last updated in December 2015. The policy stresses the importance of a constant ambition to keep the numbers of animals used low, to look for alternatives to the use of animals, and to reduce any stress and strain (“suffering”) as much as possible. Information and ethical discussions shall always precede courses and exercises that include the use of animals and/or material of animal origin. This chapter describes how this policy has been translated into practical action in the Veterinary Medicine Programme at SLU.

5.1.2. Specific strategy to ensure that each student receives the relevant core clinical training

The preparations for and execution of the clinical training have been presented in 3.1.4 and 3.1.5. The documentation of clinical activities are summarised in 3.1.9., the Day One Competences in 3.1.12 and 8.1.3., and the assessment of clinical practical skills in 8.1.2.3.

Course leaders and clinical teachers are responsible for making a representative selection with regard to species, type of disease or injury, primary or referral cases, consultations and hospitalisations, etc. In the small and large animal clinics with their high number of patients, these goals can be achieved relatively easily. The Ambulatory and Ruminant clinics are more dependent on seasonal variations. Students attend the ambulatory and ruminant clinic repeatedly during the clinical rotation year, which partly counteracts seasonal side effects.

5.1.3. Organisation and management of the teaching farms and other animals kept for teaching purposes

The Swedish Livestock Research Centre –Lövsta is part of VHF and is the teaching and research farm used for the Veterinary Medicine Programme. The centre is used, for example, for introduction to animal husbandry, teaching clinical propaedeutics in cattle, teaching herd health procedures, gynaecological exercises (incl. cow pregnancy diagnosis), and it is used by the Ambulatory Clinic. The centre is presented in 4.1.3.1. and in Appendix 4.2. [LINK](#)

Within VHC, animals for teaching and research are mainly kept in Bldg. 3. They are attended by a professional barn staff, including veterinary nurses and animal keepers. The staff are also trained to instruct and supervise students working with the animals. For the teaching of anatomy and physiology, and for the introduction to animal handling, AFB uses its own goat herd. KV maintains 25 dogs (beagles) and 15 horses for teaching the clinical propaedeutics and clinical courses, and keeps up to 8 cows during part of the year for the ruminant medicine course. The animals are also used for teaching in anatomy, physiology and for the handling of animals (milking, feeding, etc.). During a 2-week period KV borrows 20 sheep from a farmer to teach clinical propaedeutics. See also 4.1.3.1.

For surgical training (terminal), horses and growing pigs are bought. For courses where laboratory animals are used, these are bought from a firm specialised in supplying laboratory animals for research and teaching purposes.

5.1.4. Organisation and management of the University Animal Hospital - UDS

UDS is organisationally placed under the Vice-Chancellor and is not part of VHF. However, KV staff participate in the clinical work at UDS as part of their teacher's role. The fees for clinical services are decided by the University Administration and the UDS Director. On the whole, the fees are at the same level as those charged by private animal hospitals.

5.1.4.1. UDS Small and Large Animal Clinics

The UDS Small and Large Animal Clinics have 24-hour service all year round and seven days a week. All clinics accept primary and referral cases. The annual case load is close to 22 000 companion animals and 5 000 horses. Between 10 and 20% of the small animal and horse patients are referral cases. For a description of the premises and facilities of the small and large animal clinics, see 4.1.4.1.

The national programmes for the eradication of infectious diseases require careful control of animal movements, so that only a few production animals come to the clinics; thus UDS does not have a production animal clinic. Production animals are treated by the Ambulatory Clinic on farms. Furthermore, KV runs a teaching clinic for ruminants during part of the year, see 4.1.3.1.

The UDS includes state-of-the-art units for diagnostic imaging and diagnostic clinical pathology. The number of cases seen by the diagnostic imaging unit is about 9 500 a year and the clinical pathology laboratory performs some 60 000 analyses annually. See also 4.1.4.2.

At the horse clinic, there is a farriery facility, including a forge and places for 3-4 horses.

The veterinary staff at UDS and VHF departments includes a number of Diplomates of European (and American) Colleges. There is also a high percentage of veterinarians holding a national specialisation, in most cases a species-oriented one. See 9.1.4.

5.1.4.2. UDS Ambulatory Clinic

The Ambulatory Clinic serves the Uppsala and Knivsta municipalities, with an area of 2 542 km² and a population of about 230 000 people. The practice area is about 60 km from north to south and 80 km from east to west. This is an area in which traditional farming has partly been replaced by horse stables, a shift from "rural" to "urban" animal husbandry. The total number of cattle in the practice area is approximately 15 000 and the number of horses more than 12 000. There is an ongoing decrease in the number of dairy farms, at the same time the average herd size is increasing. The number of pig herds has decreased dramatically, while there is a small rise in the size of sheep herds.

The clinic is responsible for teaching veterinary students and for the animal health care of mainly farm animals and horses in the Uppsala region. This involves a 24-hour on-call duty all year round. The clinic also has the function as official veterinarians according to EU standards and serves as border veterinarians at the major Swedish international airport Stockholm-Arlanda.

There are 9 FTE veterinarians at the Ambulatory Clinic. Monday to Friday, four veterinarians go out on calls during the daytime together with the students (4 students/vet). One veterinarian is on-call during weekday nights, on Saturday and Sunday two veterinarians share these duties. Students participate in the on-call services.

The number of farm/stable visits in 2015 was 2 289, i.e. on average 6.3 visits/day. The number of cases (animals) was 5 662, including 1 602 horses, 1 451 cattle, 2 399 calf dehorning/castration, and 210 “other”. This also includes regular visits to the University’s dairy cattle (more than twice a week) and pig herds (every two or three weeks). Almost 50% of the visits were to dairy and beef cattle herds, more than 50% to horse stables, and the remaining to pig and sheep herds. About 30% of the visits were during on-call duty hours (17.00-08.00 and Saturday-Sunday).

During the clinical rotations (spring 4th and autumn 5th year) in 2015, a total of 85 students attended the course “*VM0069 Ambulatory clinic*” (7.5 ECTS). In 2015, there were students attending the clinic during 283 days (77.4%).

5.1.5. Cadavers and material of animal origin for training in anatomy, pathology and clinical measures

Anatomy- AFB teaches anatomy during the first (basic anatomy) and third (clinical anatomy) years of the veterinary programme and is also responsible for other courses, e.g. for animal science and veterinary nurse students. Dissection and demonstration material of animal origin is acquired in several different ways: donated horses and dogs; surgical exercises; organs from cattle, sheep, pigs and horses from nearby slaughterhouses; and laboratory animals that are bought for the purpose. Bodies and organs that are not used immediately are frozen at –18 °C. Formaldehyde is not used. For live anatomy (palpation etc.), animals kept at VHC, at Lövsta, and at the Cavalry Stables in Stockholm, are used. Students may also use their own dogs.

Pathology - During the course “*VM0077 Diagnostic pathology*” BVF runs a necropsy service which essentially depends on material from the UDS clinics. The active periods are usually between September – May.

Clinical measures - The introductory training in gynaecological and andrological examination uses organs from different species, which are bought from slaughterhouses. Calves (unborn) are acquired from the same source for teaching obstetrics. Furthermore, e.g. feet and skulls from horses and feet, udders, skulls and tails from cattle are obtained from a slaughterhouse to be used in the clinical courses. The organs are used either fresh or stored frozen at –18 °C.

Incinerator - Biological waste (cadavers, organs, etc.) is destroyed using the incinerator at the National Veterinary Institute. Transport (SVA) – 500 metres - is provided using closed steel containers.

5.1.6. Group size for the different types of clinical training

The group size varies depending on the part of the clinical rotation involved. There are 10 main groups of 9 or 10 students. These are divided into smaller sub-groups of 3 to 5 students during different parts of the clinical training (see page 21). When attending the Small Animal Clinic, students often work two-and-two with one being responsible for the case at hand. At the Equine Clinic, students work in groups of 2-5. In the Ambulatory Clinic's cars there are 3 to 4 students, and during herd health visits often 8 students. During evenings and weekends, there are usually two students on-call.

5.1.7. Hands-on involvement of students in clinical procedures

An approved exam in clinical propaedeutics is a prerequisite for attending the clinical rotation courses. The practical training preparing the students for the clinical rotation year take account of examination methods, various treatment methods, surgical routines, anaesthesia induction, biosecurity, client communication, etc. See 3.1.4.

During the clinical rotation, students are expected to take an active role in the examination, treatment and follow-up of patients. They are assigned a patient and should then take the medical history into consideration, examine the animal and, in consultation with the supervisor, set a preliminary diagnosis and suggest further examination and treatment. The way students work practically differs between the clinics. At the Small Animal Clinic it is usually one student who is responsible for a case, assisted by a colleague. At the Equine Clinic there may be several students who work together with a case under the supervision of a teacher. At the Ambulatory Clinic there are 3 or 4 students and one teacher in each car, and there may be one to 4 students

per individual animal. During on-call duty, i.e. evenings, nights and weekends, students assist in all handling of the patients. See also 3.1.5.

The assessment of clinical practical skills is presented in 8.1.2.3.

5.1.8. Description of the procedures used to allow the students to spend extended periods in discussion, thinking and reading to deepen their understanding of the case and its management

During the clinical rotation year, the teachers strive to provide enough time for reflection, which may, however, vary depending on current patient flow. There are separate student offices at the clinics with access to reference literature and computers, where students can prepare the cases for which they are responsible. Here the teachers and instructors can also conduct reviews and discussions of current patients.

5.1.9. Patient record system

There are two administrative systems in use for the patients, one for the large and small animal clinics and another for the Ambulatory Clinic. Both are centralised case record systems integrated into and accessible throughout the patient-flow. The students are active in using the record systems, and write patient records themselves. The records are reviewed by the supervising clinician who provides feedback to the student in question.

The record systems were originally developed to support the needs of animal hospitals and general practitioners and not primarily for research purposes. This has to some extent limited their value and necessitated additional information gathering.

5.1.10. Procedures developed to ensure the welfare of animals

The Animal Welfare Act (SFS 1988: 534) establishes the rules for the use of animals in research and education.

As mentioned above (5.1.1.) SLU has a policy for the use of animals in research and education (presently an updated version is being translated to English). SLU has a designated superintendent who supervises to ensure that the work and use of animals are in accordance with the legislation. There is also an Advisory Committee which works to strengthen animal welfare for animals used in research and education at SLU. In addition, inspectors from the County Council conduct annual regulated audits and the inspector can close down a facility if its operations do not comply with the legislation.

By law, it is mandatory to have basic education in laboratory animal science before being permitted to work with animals in research and (many) educational activities. Thus, all staff must be adequately educated, trained and competent before working with animals at SLU.

SLU has joined in a partnership with other universities and established a web course in laboratory animal science. There is a basic module on laws and ethics as well as modules on a few different species. The course is in English. For third cycle students working with animals, the web course is supplemented by a mandatory 1.5 ECTS course that more extensively covers the legislation around laboratory animals, experiment planning and design, the evaluation of pain, stress and well-being in animals, and the 3R concept.

Animal experiments, including some educational activities, can only be performed if there is an ethical permit/ethical licence which is granted by an ethical committee. The permit is valid for up to 5 years and can comprise several projects. It is the research group leader/project leader who submits the application for ethical evaluation of animal experiments. It is the holder (Principal Investigator/Project Director) of the ethical permit who is legally responsible for all activities covered by the ethical licence.

According to SLU policy, students should be given the opportunity to inform themselves about the policy for the use of animals in research and education if they plan to follow a programme/course where the handling of animals and materials from animals is included. There should also be a presentation of course elements where live animals, carcasses or tissues from animals are used, that prospective students can exploit before they apply to the programme/course.

Students are introduced to the use of live animals and bodies/organs from animals during the

Veterinary Medicine Programme as soon as during the first course. During the first year of studies (and later!), the students also attend discussions on the use of animals with teachers, researchers, clinicians and a lecturer in animal ethics.

5.1.11. Description of how and by whom the number and variety of animals and material of animal origin for pre-clinical and clinical training, and the clinical services provided by the Establishment are decided, communicated to staff, students and stakeholders, implemented, assessed and revised.

These issues are handled in a similar way to other decision-making, consultation and information issues within SLU and have been summarised in Chapter 1.1.6.

Table 5.1.1. Mean number of cadavers and material of animal origin used in practical anatomical training 2014-2016

| Species | Cadavers | Organs | Origin |
|-----------------|----------|--------|---------------------------------------|
| Cattle | few | >200 | Mainly organs from abattoir |
| Small ruminants | 13 | <150 | Own herd and abattoir |
| Pigs | 53 | 87 | Other courses and abattoir |
| Dogs | 20 | 0 | Donated by the Swedish Army |
| Cats | 26 | 0 | Donated by owners |
| Equine | <10 | <100 | Donated by owners and from abattoir |
| Poultry | 37 | 0 | From farms |
| Rabbits | 5 | 0 | For demonstration |
| Exotic pets | few | 0 | |
| Rats | 36 | 0 | From Biomedical Centre, Uppsala Univ. |
| Mink | 88 | 0 | Donated by breeders |

Table 5.1.2.a. Healthy live animals used for pre-clinical training at VHC

| Species | 2016 | 2015 | 2014 | Mean |
|--------------------------|------|------|------|------|
| Cattle | 8 | 8 | 9 | 8.3 |
| Sheep | 20 | 20 | 20 | 20.0 |
| Goats | 26 | 33 | 25 | 28.0 |
| Pigs | 22 | 25 | 50 | 32.3 |
| Companion animals (dogs) | 24 | 26 | 27 | 25.7 |
| Equine | 21 | 21 | 20 | 20.7 |
| Rats | 30 | 30 | 30 | 30.0 |
| Mice | 30 | 30 | 30 | 30.0 |

Table 5.1.2.b. Healthy live animals available for pre-clinical and clinical training at the Swedish Livestock Research Centre - Lövsta

| Species | 2016 | 2015 | 2014 | Mean |
|---------|--------|--------|--------|--------|
| Cattle | >600 | >600 | >600 | >600 |
| Pigs | >2 500 | >2 500 | >2 500 | >2 500 |

Table 5.1.3.1. Total number of patients seen intra-murally at UDS

| Species | 2016 | 2015 | 2014 | Mean |
|--|--------|--------|--------|----------|
| Cattle | 25 | 26 | 34 | 28.3 |
| Small ruminants | 24 | 45 | 20 | 29.7 |
| Pigs | na | na | na | na |
| Companion animals (dogs, cats) | 20 842 | 19 479 | 19 690 | 20 003.7 |
| Equine | 4 696 | 4 418 | 4 833 | 4 649.0 |
| Rabbits | 188 | 160 | 189 | 179.0 |
| Exotic pets (mammals, birds, reptiles) | 133 | 129 | 142 | 134.7 |
| Alpacka, Llama | 2 | 0 | 1 | 1.0 |

Table 5.1.3.2. Number of patients seen by students intra-murally at UDS

| Species | 2016 | 2015 | 2014 | Mean |
|--|-------|-------|-------|---------|
| Cattle | 25 | 26 | 34 | 28.3 |
| Small ruminants | 24 | 45 | 20 | 29.7 |
| Pigs | na | na | na | na |
| Companion animals (dogs, cats) | 2 739 | 2 442 | 2 673 | 2 618.0 |
| Equine | 623 | 555 | 608 | 595.3 |
| Rabbits | 63 | 54 | 64 | 60.3 |
| Exotic pets (mammals, birds, reptiles) | 45 | 43 | 48 | 45.3 |
| Alpacka, Llama | 2 | 0 | 1 | 1.0 |

Table 5.1.4. Number of farm visits (italics) and patients seen extra-murally (in the ambulatory clinic)

| Species | 2016 | 2015 | 2014 | Mean | |
|-----------------|-----------------------------|-------|-------|-------|-------|
| Cattle | <i>Farm visits</i> | 874 | 979 | 987 | 947 |
| | Individual animals, approx. | 1 150 | 1 300 | 1 300 | 1 250 |
| | Castration, dehorning | 2 100 | 2 100 | 2 100 | 2 100 |
| Small ruminants | Individual animals | 149 | 137 | 124 | 137 |
| Pigs | <i>Farm visits</i> | 15 | 13 | 26 | 18 |
| Equine | Individual animals | 1 524 | 1 666 | 1 537 | 1576 |

Table 5.1.5. Percentage (%) of first opinion patients used for clinical training (both in UDS and ambulatory clinics, i.e. tables 5.1.3 & 5.1.4)

| Species | 2016 | 2015 | 2014 | Mean |
|-------------------|---|------|------|------|
| Cattle* | 67.7 | 67.6 | 67.8 | 67.6 |
| Small ruminants | 71.1 | 75.3 | 71.5 | 72.7 |
| Pigs | na | na | na | na |
| Companion animals | 13.4 | 12.5 | 13.6 | 13.1 |
| Equine | 26.4 | 27.5 | 25.7 | 26.5 |
| Rabbits | Estimated 1 out of 2 cases seen by students | | | 50.0 |
| Exotic pets | Estimated 1 out of 2 cases seen by students | | | 50.0 |

*Excl. castration and dehorning of calves which is always done with students being active

Table 5.1.6. Cadavers used in necropsy

| Species | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-------------------------------------|-----------|-----------|-----------|-------|
| Cattle | 16 | 29 | 39 | 28.0 |
| Small ruminants | 6 | 24 | 15 | 15.0 |
| Pigs | 22 | 46 | 13 | 27.0 |
| Companion animals | 192 | 217 | 137 | 182.0 |
| Equine | 53 | 83 | 57 | 64.3 |
| Poultry & rabbits | 30 | 14 | 11 | 18.3 |
| Exotic pets (ferret, gecko, turtle) | 2 | 1 | 0 | 1.0 |

Table 5.1.7. Number of visits in herds/flocks/units for training in Animal Production and Herd Health Management

| Species | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-------------------|------------------------------------|-----------|-----------|------|
| Cattle | 88 | 88 | 80 | 85.3 |
| Small ruminants | 8 | 8 | 8 | 8.0 |
| Pigs | 41 | 53 | 41 | 45.0 |
| Equine | Ambulatory clinic, cf Table 5.1.4. | | | |
| Poultry & rabbits | 1 | 1 | 1 | 1.0 |

Table 5.1.8. Number of visits per student in slaughterhouses and related premises for training in FSQ

| Species | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|----------------------------|-----------|-----------|-----------|------|
| Ruminant's slaughterhouses | 5 | 5 | 5 | 5 |
| Pig's slaughterhouses | 5 | 5 | 5 | 5 |
| Poultry slaughterhouses | - | - | - | - |
| Meat processing plant | 1 | 1 | 1 | 1 |

5.2. Comments

The access to animals for teaching at VHC and the Swedish Livestock Research Centre - Lövsta are important factors for VHF activities. The professional barn and kennel staff play a central role to assure animal welfare. Outdoor areas for horses and dogs, environment enrichment, a horse walker and summer pasture are important contributions to the animals' well-being.

A concern is that the number of production animals in the Ambulatory Clinic practice area and number of animals at the Ruminant Clinic is decreasing. In the long-run, this may affect the training to cope with cattle and pigs cases. Biosecurity measures have already excluded the veterinary students from visiting poultry and chicken holdings.

Among the students, the view of animals - and experience of animal husbandry - varies greatly. From the first day at the Veterinary Medicine Programme the teachers therefore clarify that the being a vet student you have to accept that farm animals are held for food production and that food safety is an important part of veterinary duties. The senior lecturer in animal ethics has also contributed to a lift of the ethical issues in teaching. KTC successfully prepares the students (veterinary and veterinary nursing) before meeting live animals, both teaching animals and patients. In this way the stress is reduced both for students and animals.

5.3. Suggestions for improvement

It is an asset to have a large number of patients to select from and the cases used in teaching contribute to an all-round and active hands-on training. In spite of this, there is a strong feeling among teachers that the case load at UDS could be better used for clinical training of students.

6. LEARNING RESOURCES

6.1.1. Description of the main library

The SLU University Library works with and develops scientific communication and supports research and education in collaboration with researchers, students and employees at SLU. The library has around 40 FTE, spread over the different campuses. The library has approximately half a million visitors to the physical locations, and over a million visits to the digital library per year.

There are two departments within the library, one of Scholarly Communication and one of Research and Learning Support. The majority of the departments' staff are professional librarians, and there are also systems specialists and information officers.

Opening hours and extended hours

The library and the digital customer service are staffed Monday-Friday 09.00-16.00. Students and SLU staff have access to the library premises all days 06.00-23.00. Students use their key card to get access outside the library's regular staffed hours. Self-checkout machines are used to borrow and return books. Security guards do their rounds in the library during the evening.

Table 6.1. Library budget 2016, 1000 €

| Expenses 2016 | Research | % | Education | % | Total |
|----------------------|-----------------|-----------|------------------|-----------|--------------|
| Personnel | 1 963 | 65 | 1 058 | 35 | 3 021 |
| Public premises | 196 | 30 | 457 | 70 | 653 |
| Other premises | 302 | 70 | 129 | 30 | 431 |
| Media | 1 705 | 98 | 42 | 2 | 1 747 |
| Operating costs | 356 | 69 | 158 | 31 | 514 |
| Depreciations | 0 | | 24 | 100 | 24 |
| Sum | 4 522 | 71 | 1 868 | 29 | 6 390 |
| Revenues 2016 | | | | | |
| SLU-financing | 4 448 | 71 | 1 815 | 29 | 6 263 |
| Other sources | 74 | 59 | 52 | 41 | 126 |
| Sum | 4 522 | 71 | 1 867 | 29 | 6 389 |

The library OH for 2016 was 3.2 percent of direct payroll costs for research, postgraduate education and environmental monitoring and assessment, and 436 € per student FTE to cover costs for the library's support to education.

Library facilities and equipment

The library is situated in the central part of SLU Ultuna campus, 300 m from the VHC main entrance. In addition to the library collections and the public reading rooms (>100 seats), there are eight bookable group study rooms with 6-10 places (total 54) in the library building. For literature search, 35+ public computer stations and a number of “all-in-one printers” are available. The two computer labs adjacent to the reading rooms are available for students to use when they are not booked for teaching purposes. One of them is a “silent” room. There is no cost charged for photocopies ordered from the SLU Library’s collections. Loans within Sweden and the Nordic countries are also free of charge.

Databases and software for bibliographical search

Primo is the library's tool for simple, one-stop discovery and delivery of local and remote resources, such as books, e-books, journals, articles, dissertations, databases, etc. Searches can be made of the catalogue of the SLU University Library, including e-books and e-journals, dissertations and student projects from SLU's open access archive Epsilon, and articles and other publications from a wide range of external databases and publishers, in total over one billion records. *Primo* also assists with renewing loans, creating favourites lists, saving searches and giving alerts when new content is available, as well as exporting citations to reference management software.

Some databases suggested by the library include Web of Science, Scopus, ProQuest, PubMed and Google Scholar. Within the subject area veterinary medicine, more than 20 more or less specialised databases are also available. In *Epsilon* – the SLU open access archive - dissertations, student degree projects and other SLU publications are freely available in full text. *SLUpub* – the SLU publication database - covers publications by SLU researchers. The database started 2003, but some older material is included. Many publications are available in full text, mainly the newer material. *Ebook Central* is the library's main supplier of e-books, with a collection spanning across all SLU disciplines. In addition, a number of major *e-book suppliers* are also available: CAB eBooks, Dawsonera, Knovel, Oxford Scholarship Online, ScienceDirect, SpringerLink, Wageningen Academic Publishers, and some free e-book sites (Google Books, Bookshelf (NLM), College Open Textbook Project, FreeBooks4Doctors, and IVIS – International Veterinary Information Service). The library has made the lectures from *HSTalks - The Biomedical & Life Sciences Collection* – available.

Veterinary books and periodicals

The library holds about 150 000 books and 250 periodicals. In addition, it provides approximately 140 000 e-book titles and 12 000 e-periodicals. The number of *veterinary* books and periodicals (not including animal science, zoology, etc.) available to students and SLU staff comprises more than 2 000 book titles, 5 printed periodicals, 900 e-books, 123 e-periodicals (90 with full archives), and 90 open access journals

6.1.2. Libraries at the other SLU campuses

Campus libraries are also supporting research and education in Umeå, Skinnskatteberg and Alnarp. There are three specialised subsidiary libraries, one for ecology (Uppsala), one for equine studies (Flyinge) and one at the Institute for freshwater research (Drottningholm).

6.1.3. IT facilities and e-learning platform

The mission of the Division of IT is to provide a cost-efficient IT infrastructure at SLU. This includes management, development, coordination and support of administrative systems, e-mail systems and telephony. It also monitors that SLU's IT policy is followed, and develops SLU standards for hardware and software. The Division is responsible for central services and advice on software, computers, various licences, IT security, lecture room IT facilities, Wi-Fi, telephony/video meetings, printers and copying machines. It also offers a range of telephony services such as fixed and mobile telephony, mobile broadband, voice mail and call centre services. The Division of IT has offices at all SLU campuses. The total number of employees is about 80 persons of which almost 50% belong to the IT and Communications support unit. In addition to the Division of IT staff, all departments also have their own IT coordinator.

Support for the development of instructional materials

In order to support the production of instructional materials, the library and the Division of

Educational Affairs have developed an on-line course “*Use film in your teaching*” for SLU teachers. The three independent modules are - The pedagogy framing films for education; Tools for creating films for education; and How to use and share films for education. The Division of Educational Affairs also offers professional video production support. See also [9.1.2](#). The Education Development Unit (EPU), for a presentation of courses for teachers.

Software support to SLU students

Students at SLU can download and install **Microsoft Office 365 ProPlus** for free. This package includes Word, Excel, PowerPoint and many other applications. **Other software** available for free includes SAS, JMP, Minitab/Minitab Express, Endnote and Umetrics. There are also some applications specially designed for people with a disability, which work very well for all users.

6.1.4. Electronic information and e-learning courses

There are primarily four different systems for communication with students. These have different purposes (see also Appendix 6.1. [LINK](#)):

- **My studies** – information about the individual’s studies from the studies administrative system Ladok.
- **Course pages** – links to course pages from My Studies on the student web start page.
- **Fronter** – digital course rooms available only for teachers and students attending a course.
- **E-mail** – each student has access to an email address at SLU.

e-learning courses and materials - Through Fronter, students will have access to links to compendiums, lecture hand-outs, quizzes and video recordings.

6.1.5. Wi-Fi and VPN

All SLU students and staff have access to Wi-Fi and the University network at the Ultuna campus. The SLU VPN (Virtual Private Network) service allows staff and students to log in to the University's network from anywhere in the world and get access to the restricted resources. This also means that they have off-campus access to databases, e-journals and e-books that the library subscribes to, which are restricted by licence agreements and can only be used within the university.

6.1.6. How access to and use of learning resources is taught to students

Introduction to the computer environment - The Division of IT offers new students a brief introduction to the computer environment. The presentation is aimed at new students who wish to gain an understanding of how the computer environment works at SLU. The students are introduced to the web-based self-service system where, via their user account, they can access the student portal, e-mail, user folders on the file server, the computer labs, the printing system and the student network, as well as learn how to connect to the network from home.

Introduction to information retrieval and scientific communication - The first month of studies at the Veterinary Medicine Programme includes a general introduction to the veterinary programme and different tools for higher education (Fronter, Course pages, etc.). On completion of the course, the student shall be able to use the resources of the library and computer-based information systems for students at SLU, and be aware of the implications of studies in the veterinary programme.

Bachelor’s degree project - In the 6th semester course *EX0700* (15 ECTS) lectures and exercises includes e.g. information retrieval, scientific writing and critical review of scientific literature. In the 2017 Curriculum, a major difference is that there will no longer be a Bachelor degree project course within the programme. However, the parts described above will be retained in a new course, “Scientific approach, 9 ECTS”, given during the third year.

Master’s degree project in Veterinary Medicine, 30 ECTS - The degree project consists of a supervised scientific research project within Veterinary Medicine. The work process shall include identification and formulation of issues and questions in order to solve a scientific research task, to independently search for and to use scientific literature of relevance, to apply scientific methods and to present the various parts of the project, both in writing and orally.

Book a Librarian - Through the Book a Librarian service, staff and students can get help with a number of different library-related issues, e.g. information retrieval (formulating a search

query, finding scientific articles, books, and so on). The librarian provides **30 minutes** of individual help, guidance can also be given through a web meeting.

Language support - Students working on a written assignment in Swedish or English and who feel insecure can book a language support tutorial. Together with the tutor, the student selects one or more sections of their text to discuss during the tutorial. The tutor will focus on structure, language and the writing process, and will not comment on subject-matter content.

6.1.7. Description of how and by whom the learning resources provided by the Establishment are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

These issues are handled in a similar way as other decision-making, consultation and information issues within SLU and have been summarised in Chapter 1.1.6.

The **Library Council**, with members from all faculties, is the body handling all strategic issues concerning the library's activities, including ensuring a high-quality, resource-efficient service for the whole of the university. It also submits proposals for the annual allocation of funding to the library, both from common funds and from the faculty boards.

Furthermore, the library regularly consults programme directors of studies and course leaders in order to be able to provide copies of recommended course literature, both for loans and as reference copies. Students and staff can also propose new acquisitions using a web form,

6.2. Comments

The library provides very good support and is also represented in PN-VH.

Further development of IT-based student support systems is ongoing to create easier access.

VHF has invested in a common Education Service Office for the eight programmes, which is positive for both students and teachers. Through support to students in practical questions and by standardised management of examinations, the QA and legal certainty are also increased.

6.3. Suggestions for improvement

No suggestions.

7. STUDENT ADMISSION, PROGRESSION AND WELFARE

7.1.1. How are SLU courses and programmes advertised to prospective students

SLU's student recruitment activities are diverse. Using a long-term plan of action, the Student Recruiting Group works strategically, as well as operatively with everything from advertising and events to attending education fairs and producing profile products. The activities in 2016/2017 included *Study at SLU Magazines*, *Fairs*, "*Follow a Student*", *Student blogs* (See veterinary student blog [link](#)), *International Advertisement – online*, *Swedish Advertisement – online*, *Open House*, *Google Adwords*, *Facebook*, and *Web*. With a very high number of daily visitors on slu.se, this becomes an important tool in the recruitment process. See [link](#). For veterinary programme [link](#) (in Swedish). Information about the 2007 ESEVT evaluation is also available – [link](#).

7.1.2. Admission procedures for standard students

UHR - The Swedish Council for Higher Education - manages the admissions process together with the Swedish universities. The pooled admissions system is administrated by University Admissions. This means that applicants can apply for courses and programmes at all Swedish universities on the same online application.

7.1.2.1. Selection criteria

In order to meet the **general entry requirements** for Bachelor's level studies, students must have successfully completed their upper secondary (high school) education. Once a student has met the general entry requirements common to all studies at the Bachelor's or Master's level, they must also check what **specific entry requirements** are needed for the course or programme they wish to apply for.

For all students who apply for a specific course or programme, and meet the general and specific entry requirements, a **merit rating** (also known as grade tariff) is calculated by University

Admissions. Based on this merit rating, students are placed in a ranked order, from the highest merit rating to the lowest. The merit rating is based on the grades submitted in the supporting documentation. The merit rating scale is from 10 - 22.5 (the better the previous grades, the higher the merit rating).

In order to become admitted to the Veterinary Medicine Programme there are, in addition to general entry requirements, specific entry requirements with regard to Biology, Physics, Chemistry and Mathematics.

Two thirds of the places on the Veterinary Medicine Programme are distributed on the basis of the applicant's grades from upper secondary education. Depending on the school type, the applicants will be placed in one of four **selection groups**. Applicants with the same background will thus be competing with each other for a place in the programme. One third of the students are selected on the basis of their results in the Swedish Scholastic Aptitude Test, see [LINK](#).

There are always more eligible applicants than places available; in the period 2014-2016 the average number of applicants was 1 733, of which 902 first hand applicants. Of the 101 admitted students, there were 87% women and 79% were younger than 25 years.

7.1.2.2. Policy for disabled and ill students

Different kinds of support are available to those who have applied for and been granted special educational support. The educational support a student will receive is adapted to the particular disability and study situation. It is individually structured by the coordinator/contact person and the student. See more detailed information under 7.1.6.3.

7.1.2.3. Composition and training of the selection committee

There is no selection committee engaged. See 7.1.2.

7.1.2.4. Appeal process

The Higher Education Appeals Board is the public authority responsible for hearing appeals against decisions made in the higher education sector. It is the final appeal body and its decisions may not be challenged.

7.1.2.5. Advertisement of the criteria and transparency of the procedures

Information on how to appeal is attached to all decision documents and indicates both in what way, to whom and when the appeal is to be filed. The transparency of the procedures is an essential part of the Swedish principle of public access to official documents.

7.1.3. Admission procedures for full fee students

There are no special admission procedures for full fee students.

7.1.4. Number of admitted students, available educational resources and biosecurity and welfare requirements

The number of students admitted annually is decided by the University Board and depends on a number of factors, e.g. estimated need for newly trained veterinarians, number of applicants for the Veterinary Medicine Programme, number of incoming veterinarians with education in another country (EEA, Switzerland), financial and learning resources, clinical activities, animals for teaching purposes, and available competent teachers.

Over time, the various factors have had a varying influence, but since 2007 the annual admission is 100 new students. In 2013, a "technical over admission" of 110 students was introduced, which usually results in about 100 students remaining after the first term. In this way, the resources available are optimally utilised.

Need for newly trained veterinarians

There are approximately 4 900 veterinarians who carry a license to practice in Sweden (about 500 of these are older than 70 years). The number who are professionally active in the country is estimated to 3 000.

Many factors affect the need for veterinarians. The final effects of the recent and still ongoing major restructuring of the private animal hospitals and clinics are yet to be seen. The number of pets will probably continue to increase, but at a lower rate. The dramatic rise in the number of horses has levelled off. The number of farms with production animals is decreasing. In addition,

the number of veterinarians trained in other European countries (EES, Switzerland) that apply for a Swedish license to practice is considerable, some years as many or more than the number of Swedish graduates. A significant part of the incoming veterinarians are Swedish students primarily trained in Denmark, Hungary and Poland.

The Swedish Board of Agriculture conducted a survey on animal health care in 2013. They then claimed that the number of veterinarians is large and that if the number of study places was reduced by one third, the need would still be covered. However, today several sources (SCB, Statistics Sweden; AF, Central Employment Agency; Saco, the Swedish Confederation of Professional Associations) claim that there is a balance in the labour market for newly graduated veterinarians. They share in the guarded forecast that the balance will remain in five years from now.

Available educational resources

The most important limiting factors are financial resources and the availability of teachers for the practical training, and especially so for the practical-clinical parts of the programme. There are no financial resources available for an increase of the present number of teachers and students during the clinical rotation year.

Biosecurity – Security is central in terms of handling animals, carcasses, drugs, chemicals and radiation as well as the risks of exposure to or spreading infection. When students are introduced to a course or a new environment, safety routines and precautions are always presented.

Appendix 7.1. is an example of the written material provided for the clinical rotation year. [LINK](#)

Welfare requirements – see 7.1.6.

7.1.5. Progression criteria, remediation, attrition and exclusion

7.1.5.1. Progression criteria and procedures for all students

Years 1-4. Review is conducted before the start of the academic year - Requirements for starting a new academic year are that all courses except the last of the previous academic year are fully approved. The last course must be completed (see below).

Year 4 (spring semester) – year 5 (autumn semester), Clinical rotation year - All courses in years 1-3 must be fully approved. Furthermore, all practical/skills tests in course VM0072 Introduction to clinical studies must be approved.

Year 5 Veterinary public health with applied epidemiology and epizootiology - All courses in years 1-3, VM0072 Introduction to clinical studies and at least 20 ECTS of Clinical rotation courses must be fully approved.

Year 5 Discipline oriented electives - All courses in years 1-3, VM0072 Introduction to clinical studies and at least 40 ECTS of Clinical rotation courses must be fully approved.

Year 6 Degree project in veterinary medicine - All courses in years 1-3 and at least 30 ECTS courses at advanced level (Year 4+) must be fully approved.

Completed course - the student participated in all compulsory parts of the course, participated in laboratory work, practical-clinical education and other teaching subjects to the minimum required for approved attendance, as indicated by course leaders at the start of the course. In addition, the student must have completed the course assignments, reports, etc.

The total **number of examinations** (exam sessions per course) and practicals may be limited only if it would result in unreasonable resource solvency for SLU not to limit them. Such a limitation must be stated in the course plan. In the event of a limitation of the total number of exam sessions, the student shall be entitled to at least five (5) times for each test included in a course. Each occasion on which the student sits an exam is counted as an exam session. A started exam session is counted as a consumed test opportunity.

A student may have to **discontinue the clinical training** with live animals if there is a significant risk that the student, other persons, animals or valuable property will be injured as a result of the students' carelessness. An individual plan is to be prepared by the department responsible after consultation with the student counsellor and the student concerned. This plan, which is to be decided by the Programme Director of Studies, shall describe the shortcomings in knowledge and skills that exist and the support the student can obtain from the institution. The plan shall

also specify when and how the follow-up control will be carried out. The student may not participate in clinical education with live animals until the Programme Director of Studies has checked and approved that the student has obtained the required knowledge and skills. A student is entitled to a maximum of two check-ups.

Study breaks and resumption of studies

The Vice-Chancellor has decided on a special selection scheme for students returning after study breaks. Available places on a course within the Veterinary Programme are distributed according to the following prioritisation scheme:

1. Students who have had a study break with a guaranteed place at re-entry and who signed up on time, or requested re-registration for a course.
2. Students who follow the curriculum and have participated in the previous course according to the curriculum of the programme and who signed up for the course in time.
3. Students who have had a study break without a guaranteed place at re-entry and who signed up on time, or requested re-registration for a course.
4. Students who have had an unannounced study break and who signed up on time, or requested re-registration for a course.
5. Late registrations for the course will be handled after all registrations that were received on time.

If there are more applicants in selection group 2 than there are places, first and foremost the department(s) will be given the opportunity to expand the number of places; secondly, the seats are allocated by a ballot. Places in groups 3-4 are always allocated by a ballot.

7.1.5.2. Remediation and support for students who do not perform adequately

In cases where a student does not register for a course, does not attend the course or has an abnormally high absence, the course leader informs the Programme Director of Studies. The Programme Director then tries to contact the student via e-mail, asking if support or advice is needed and informing that support is available (from course management, Programme Director of Studies, or study and career advisors). It is up to the student to ask for support or advice - the study advisor is not entitled to contact students who did not seek help.

7.1.5.3. The rate and main causes of attrition

Students have no absolute obligation to report that they have discontinued their studies. Therefore, both definitive and probable study breaks are presented in Table 7.X.1.

Table. *Definitive and (probable) dropouts from the Veterinary Medicine Programme and likely causes.*

| Study year | 2013/2014 | 2014/2015 | 2015/2016 | | |
|------------|-----------|-----------|-----------|--------------------|---------|
| 1 | 3 (10) | 2 (7) | 2 (6) | Medical education | 4 (13) |
| 2 | (4) | 2 | | Other univ studies | 5 (8) |
| 3 | (3) | 1 (4) | 1 | Illness | (1) |
| 4 | | | | Failed exams | (9) |
| 5 | | | (1) | Unknown | 2(4) |
| Total | 3 (17) | 5 (11) | 3 (7) | Total | 11 (35) |

7.1.5.4. Exclusion and appeal procedures

The *Higher Education Expulsions Board* hears matters regarding the expulsion of students from higher education. A student may be expelled from higher education studies if there is clear risk that the student will harm another person or cause substantial damage to property during the course of his or her studies and, if the student also suffers from a mental disorder, or abuses alcohol or drugs, or has been found guilty of a serious crime.

A case is opened following a report from a vice-chancellor of a HEI. A matter can also be taken up on the request of a student who has been expelled. A decision to expel a student means that the student may not continue their studies. As a rule, the student may not be admitted to equivalent studies at another higher education institution. However, an expulsion may mean that the student may not be admitted to any type of higher education. The expulsion has no time limit.

However, the student may ask the Higher Education Expulsions Board to reconsider its decision two years after a decision has been made. A student or a HEI may take an appeal against any decision made by the Higher Education Expulsions Board to the Administrative Court.

7.1.5.5. The advertisement to students and transparency of these criteria/procedures

Information on criteria and procedures is available at several sites, including Course pages and the SLU Students' website. Course leaders shall also inform about the rules when needed. Information on appeals procedures is attached to all decision documents. The transparency of the procedures is an essential part of the Swedish provisions on the publicity of official authority. See [LINK](#).

7.1.6. Services available for students

7.1.6.1. Student finance system

CSN is the Swedish Government authority in charge of financial aid for studies. It means that CSN examines the right to financial aid for studies, pays out financial aid for studies, and manages repayment of loans.

Student aid is primarily intended to cover a student's living costs during their education. Student aid includes both *grants* and *loans* (74.9 € and 188.6 €, respectively, per week of full time studies). The loan must be paid back later on. While studying at a HEI, a student can receive student aid up to a maximum of 240 weeks (12 semesters). There are also additional grants and loans available under special circumstances, e.g. extra child allowance.

7.1.6.2. Insurance policies

During study hours, all students and doctoral students are covered by the personal injury insurance for students via Kammarkollegiet (the Legal, Financial and Administrative Services Agency). As the insurance is only valid during study hours and when travelling directly between the place of residence and the place where study hours are spent, it is important to arrange insurance to cover leisure time. For foreign students or doctoral students, exchange students or fee-paying students, SLU has arranged various supplementary insurance policies.

7.1.6.3. Assistance in case of illness and study-related health issues

For *general and acute illnesses*, students have access to local health centres and the nearby University hospital.

The *Student Health Centre* offers individual counselling sessions, as well as courses and workshops. The Centre helps with *study-related health issues*, such as stress, performance and exam anxiety, having difficulty concentrating, fear of speaking in public or a lack of confidence. The Centre's staff includes nurses and welfare officers. Everyone at the Student Health Centre is covered by an obligation of confidentiality. This means that no information relating to students is passed on to SLU.

If a student misses any compulsory part of a course through illness, they are advised to contact the course leader for the course in question. If a student signed off ill part time or if for some other reason needs to review the studies, the **study and career advisors** at SLU are there to provide support. If a student becomes so ill that they are unable to study for a longer period, they should apply to SLU for approved leave from studies. If there are special reasons, approved leave from studies with guaranteed admission may be granted for one year at a time.

If the illness results in lasting disability or has such consequences that the student needs special teaching support, the University's coordinator for students with disabilities shall be contacted.

7.1.6.4. Psychological working environment

Quoted from the SLU student website: "*We are each other's study and working environment! It is important to respect other students and the teachers, even if their opinions are different to yours. Problems in the psychological working environment can be reported to the course leader, head of department or programme director of studies if they are a general departmental problem. By all means ask the study advisers for help. The [student welfare groups](#) at each study venue also work to ensure a good psychological study environment on SLU's courses and study programmes.*"

Stress and high performance demands can create a negative study environment. The Student Health Centre can provide individual advice and also arranges courses on stress management, among other things.”

7.1.6.5. Assistance in case of impairment and disability

The University’s coordinator for students with disabilities offers a number of different kinds of support to those who have applied for and been granted special educational support, for example: Help taking notes; Listening to literature on the reading list; Resource computers with special software; Adapted examinations; Additional supervision; Student mentor programme; and Sign language interpreter/text interpreter. For details, see [LINK](#).

7.1.6.6. Student Unions

SLU has seven student unions which represent the students’ interests and work to ensure high-quality courses and programmes. The unions are independent from the university. The union that engages veterinary and veterinary nurse students is “Veterinärmedicinska Föreningen, VMF”.

SLUSS (Joint Committee of Student Unions at SLU) is a collaborative body for the student unions at SLU. Its primary task is to represent all students at SLU on general issues concerning the university. SLUSS represents the students on the SLU Board, in the Vice-Chancellor's Management Group, UN, faculty boards and programme boards..

Students have the right to influence the education at their university. Universities must endeavour to enable students to play an active role in the continued development of courses and programmes (Higher Education Act, Chapter 1 Section 4a). Students also have the right to be represented when decisions or preparations are made that are relevant to their education or the students' situation (Higher Education Act, Chapter 2 Section 7).

7.1.7. Forecast number of new students admitted for the next 3 academic years

During the period 2017-2019, 110 new students will be admitted each year to the Veterinary Programme (incl. “Technical over-admission”, see 7.1.4.).

7.1.8. Description of how and by whom the admission procedures, the admission criteria, the number of admitted students and the services to students are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

A number of laws and regulations govern students' rights and obligations. This also means that universities have a large number of regulations that must be followed. This has been previously described in Chapter 7.

As regards decision-making, consultation and information channels in matters that SLU decides, they are described in Chapter 1.1.6.

Table 7.1.1. Number of new veterinary students admitted

| Type of students | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-------------------|------------|-----------|------------|------------|
| Standard students | 101 | 98 | 103 | 101 |
| Full fee students | 0 | 0 | 0 | 0 |
| Total | 101 | 98 | 103 | 101 |

Table 7.1.2. Number of veterinary undergraduate students registered

| Year of programme | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-------------------|------------|------------|------------|------------|
| First year | 101 | 98 | 103 | 101 |
| Second year | 92 | 82 | 96 | 90 |
| Third year | 89 | 86 | 94 | 90 |
| Fourth year | 76 | 96 | 76 | 83 |
| Fifth year | 83 | 74 | 81 | 79 |
| Sixth year | 71 | 79 | 75 | 75 |
| Total | 512 | 515 | 525 | 517 |

Table 7.1.3. Number of veterinary students graduating annually

| Type of students | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-------------------|-----------|-----------|-----------|-----------|
| Standard students | 68 | 78 | 79 | 75 |
| Full fee students | 0 | 0 | 0 | 0 |
| Total | 68 | 78 | 79 | 75 |

Table 7.1.4. Average duration of veterinary studies

| Duration | % of the students who graduated in 2015/2016 |
|-------------------|--|
| + 0* | 81 % |
| + 1 year | 18 % |
| + 2 years | 1 % |
| + 3 years or more | 0 % |

* The total duration of the studies matches the minimum number of years of the programme (e.g. 5.5 years)

Table 7.1.5. Number of postgraduate students registered (active) at VHF

| Programmes | 2015/2016* | 2014/2015 | 2013/2014 | Mean |
|--------------------|--|-----------|-----------|-----------|
| Interns, Residents | Not applicable – See Chapters 9 and 10 | | | |
| PhD students | 157 (149) | 172 (168) | 179 (169) | 169 (162) |
| Lic students | 16 (12) | 15 (13) | 13 (10) | 15 (11.5) |

7.2. Comments

The Veterinary Medicine Programme has the luxury of a high application pressure. However, a striking imbalance regarding gender is present. Furthermore, SLU's programmes do not attract immigrant categories, a fact that politicians expect the University to do something about.

Early departure from education has resulted in the compensatory “technical over-intake”.

Almost one student of five finishes their studies later than the 5.5 scheduled years. The main reason is that the work on the Degree thesis has been delayed. Within a year, however, virtually all have completed the thesis and taken their degree.

The friendly contact between teachers and students is a valuable strength, especially during the clinical practical training. The student union VMF takes a significant responsibility within the VHF activities,

The system for support to students is very well-developed. However, some veterinary students claim that they are under high stress, and the students union VMF, with support from the Faculty, organises mentor activities where third year students support the ‘rookies’.

7.3. Suggestions for improvement

No suggestions.

8. STUDENT ASSESSMENT

8.1.1. What is a final assessment?

The University's student assessment strategy and regulations are described in detail in Appendices 8.1. [LINK](#), and 8.2. [LINK](#).

A final assessment is when an examiner determines a grade for a student's achievement on a course, based on the intended learning outcomes in the course syllabus. It is a qualitative assessment of the student's knowledge, skills and abilities, and a quantitative follow-up of the student's achievement may also be included (attendance during compulsory elements).

The final assessment is based on results from one or more examination elements, henceforth referred to as exams. Every course syllabus specifies how the assessment of the student's achievement is to be made. For the Veterinary Medicine Programme: a two-point grading scale, G (pass) and U (fail), is applied. All requirements for a pass grade on a given course must be clearly communicated no later than when the course begins. See 8.2. Comments.

There are different types of exams, see 8.1.2. Exams are to be held in the language that is the course language, unless the course syllabus specifies otherwise. Exams may be held with an individual or a group of individuals, but must be devised in such a way that an individual appraisal can be made.

An exam can be made up of several parts, e.g. a number of laboratory sessions or seminars, excursions or clinical exercises. As a rule, results for such exams are not communicated until

all parts have been completed. Once the course iteration has been completed, the student is entitled to be informed about what, if anything, remains before a pass grade can be issued for the course.

8.1.2. Description of methods for assessment

There are many kinds of exams used for SLU's courses and study programmes, such as:

- Examinations (written examinations in an examination hall, take-home examinations, oral examinations, practical/clinical examinations)
- Written report/assignment (composition assignment, lab report, project report, memorandum, study trip report, essay, etc.)
- Oral report, often including public examination of another's report
- Compulsory attendance (excursion, study trip, guest lecture, practical clinical training, etc.)
- Laboratory practical exercises, attendance as an observer, clinic visit, etc.
- Placement/internship (VFU)
- Seminar (literary seminar, etc.)
- Independent project (degree project)

8.1.2.1. Theoretical knowledge

Final course exams at the Veterinary Medicine Programme are usually written examinations in an examination hall. They may, when appropriate, include histo(patho)logical slides, radiographs, etc.

8.1.2.2. Pre-clinical practical skills

“Practical” skills are trained and assessed in several courses during the first three years, and include, for example: Histology, Histopathology, Microbiological laboratory work, Sterile procedures, Biochemical laboratory work, Dose calculation, Prescription writing, Microbiological examination of food, and Handling of syringes and injections at KTC. Some of these could also be regarded as “clinical” skills.

VM0055 Structure and function of the body systems

The course includes a number of compulsory dissection tasks, and the “summing-up” practical exam is in the form of a rotation between stations where the students are required to identify different anatomical structures in organs and dissected animals (known among the students as “the gauntlet”).

VM0078 Food safety, meat inspection

During the slaughterhouse period, attendance is mandatory. The students work in small groups and under supervision of one teacher. They are required to perform examinations. Weaknesses in practical skills can be identified and the students are offered extra teaching. During the course, the students are required to write reports of, for example, an animal welfare inspection and a meat inspection.

The main part of the written examination consists of case scenarios that include images and descriptions of *ante-mortem* and *post-mortem* inspection findings. The students are required to evaluate the cases and describe the measures to be taken by the official veterinarian at a slaughterhouse.

8.1.2.3. Clinical practical skills

VM0072 Introduction to clinical studies

An approved exam in this course is a prerequisite for starting the clinical rotation courses. During the exam, the students are expected to prove their practical skills. The exam is divided into four stations during two afternoons. In some parts of the exam, one teacher interviews one student at a time, in other parts the students are grouped.

The practical exams include:

- Clinical examination and handling, small animals
- Clinical examination and handling, cattle
- Clinical examination and handling, horses, including palpation of the locomotor apparatus
- Digestive organs examination procedure, cattle
- Examination techniques of the circulatory and respiratory system, cattle

- Digestive organs examination procedure, small animals
- Sampling and drug delivery, small animals
- Surgical theatre procedures, instrument knowledge and suturing

Clinical Rotation Year

During the clinical rotation year and the following species-specific courses, attendance is mandatory during all clinical sessions/periods, demonstrations and exercises. The students work in small groups under supervision of a teacher and are required to perform clinical examinations, collection of samples, administer treatments, communicate with owners and keep records. The individual student's performance is observed and strengths and weaknesses in practical clinical skills are identified. Feedback is given continuously and students are offered extra training if needed.

VM 0073 Diagnostic imaging

There are obligatory practical sessions where students work in small groups and take radiographs of sedated dogs and horses. Students individually write radiology reports for 15 selected cases. The reports are presented to the group and the teacher in tutorials. Each student must present at least one case satisfactorily. In an obligatory tutorial, radiology reports are read aloud by the teacher while the students study the corresponding radiographs. The reports contain mistakes and inconsistencies. When the student group has satisfactorily identified inaccuracies and discussed each case, the teacher presents the correct radiology report. The final examination requires that the students write a radiology report, in the same format as is required for a veterinarian writing in a patient's records, of radiographs that they view individually on computer screens.

VM0074 Equine surgery and medicine

During the course, all students must pass an OSCE (Objective Structured Clinical Examination) covering a number of essential basic hands-on skills, for example, parts of a clinical examination (one or more organs), bandaging, drug delivery including fluid therapy (practical medication and/or calculate the dosage).

During some years, including 2015, the MEQ evaluations were also used in this course but have been abandoned because of lack of resources;

Mini-Cex - All students were evaluated at one occasion using Mini-CEX (Mini-Clinical Evaluation Exercise). Mini-CEX involves that the student is observed by a teacher when working with a patient. The teacher evaluates the work and gives immediate feedback to the student.

MEQ - The knowledge was also checked by a theoretical examination according MEQ (Modified Essay Question) in which a case history is presented in stages to mimic the handling of an actual case where you gradually get answers to enquiries and handle the case on the basis of these.

VM0076 Small animal medicine and surgery

In addition to regular Clinical rotation year practical skills evaluations, the knowledge is also checked by a theoretical examination according to MEQ.

VM0072 Ruminant medicine

In addition to regular Clinical rotation year practical skills evaluations, MEQs were used (now abandoned because of lack of resources).

VM0075 Animal reproduction

Each student is required to perform macroscopic examinations of female genitalia from pigs and cattle, as well as to assess vaginal smears from dogs and cats.

VM0069 Ambulatory clinic

During the third or fourth week at the Ambulatory Clinic, each student undergoes a practical examination. The student is assigned a primary case (horse or ruminant) and a short presentation of why the owner requests a visit. The student shall independently take the medical history, perform a relevant clinical investigation, present a clinical assessment, including the diagnosis if possible, and suggest possible further diagnostics. He/she should also be able to discuss a treatment plan and the prognosis, and perform relevant treatment. Finally, the student is expected to document the case in a structured record text.

VM0077 Diagnostic pathology

One part of the examination is to independently conduct a necropsy of a clinical case with adequate technique, including handling the risk of contagious disease. The students interpret the gross findings and present the case orally to the teachers and fellow students, with emphasis on an in-depth discussion on a plausible pathogenesis. The students then write an extended necropsy report, also including a pathogenesis and discussion on differential diagnosis as well as a response addressed to the referring veterinarian and to the animal owner. In addition, the students work more extensively with one of their necropsy cases, including histopathological examination of samples taken at the necropsy, and finally present findings and diagnosis, as well as discussing pathogenesis and differential diagnosis at a seminar.

8.1.3. ESEVT Day One Competences

In September 2016, VHF and the PN-VH initiated a project to comprehensively review the way in which Swedish veterinary education meets the requirements outlined in Annex IV, List of recommended essential competences at graduation: “Day One Competences” (taking the SLU Ordinance and the EU Directive 2005/36 as amended by Directive EC and 2013/55 / EU and its Annex V.4.1 into consideration). The aim was to break down the overall “Day One Competences” descriptions to measurable goals that can be evaluated. Furthermore, how these measurable goals are actually documented and examined/evaluated today was screened. Several meetings with teachers have been held during the project and student representatives have participated in the work. A detailed report has been produced which enables the PN-VH to identify areas that work well in order to assure Day One Competences - and it ensures that areas that may require strengthening are identified. This will now form the platform for continued renewal work regarding curriculum, course descriptions and educational goals. See Appendix 3.4. [LINK](#)

8.1.4. Description of the processes

8.1.4.1. Ensuring the advertising and transparency of the assessment criteria/procedures

Exams are to be carried out according to the common SLU rules which are to be included in the course syllabus. Grading criteria must be available on the course page no later than at the beginning of the course. Deviations from the course syllabus may be made in the following cases: supplementary assignments for a student who has not obtained a pass grade in an exam; if a student has a documented functional disability; if a course syllabus is changed or a course is cancelled.

Time and place (location) for scheduled exams and suggestions for first retake sessions must be clear from the overall timetable for the course, no later than four (4) weeks before the beginning of the course.

8.1.4.2. Awarding grades, including explicit requirements for barrier assessments

See 8.1.1. – 8.1.3. and 7.1.5.1.

8.1.4.3. Providing feedback post-assessment to students as well as guidance for requested improvement

The department running a course should offer, in connection with the course, opportunities for feedback on the assessment. The faculty determines what form of feedback to use. Feedback must be completed before the first retake session. A student is entitled to discuss issues concerning the exam assessment with the examiner. If the student so requests, the examiner must inform him/her about the grounds for the grading decision.

See also 7.1.5.1.-7.1.5.2.

8.1.4.5. Appealing

A grading decision may not be appealed against (Ch. 12, Section 2 of the Higher Education Ordinance). This means that a student is not entitled to an assessment by a second person, but that a student is entitled to request a reconsideration (Section 27 of the Administrative Procedure Act) of the grading decision by the examiner. Objections to the result should be submitted to the examiner in writing, and with a justification. A reconsideration request should be made as soon as possible.

8.1.5. Description of how and by who the student's assessment strategy is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

These issues are handled in a similar way as other decision-making, consultation and information issues within SLU and have been summarised in Chapter 1.1.6.

8.2. Comments

It is a strength that examining teachers must not only have undergone basic pedagogical courses but also a mandatory course for examiners. See 9.1.1 and 9.1.2.2.

The Education Service Office VHC (see 4.1.2.) is important for the QA of the exam procedures.

8.3. Suggestions for improvement

We want to further develop the exam as an educational tool, especially in connection with the ongoing Day One Competences initiative. Financial and staff resources for exams must however be secured.

9. ACADEMIC AND SUPPORT STAFF

9.1. Factual information

The Swedish Ordinance of Higher Education stipulates that university education shall rest on a solid foundation of active research. This also means that teachers are expected to be active scientists. There is close to 200 academic staff at VHF who have a PhD degree and more than a hundred who have a 'docentship' (associate professor, see below). At UDS, the veterinary clinicians are mainly involved in clinical work and may also instruct students.

With few exceptions, academic staff holding teacher positions are engaged in both research and teaching. This means that it is almost impossible to divide the staff into individuals who teach and those who do research. As a rule of thumb, it can be said that among teachers and instructors:

- **Professors** at VHF do a higher proportion than usual (compared to other Swedish universities) first and second level education, and are very involved as supervisors of degree projects and of PhD students.
- **Senior lecturers** (*universitetslektor*) are expected to perform approximately half-time education and half-time research.
- **Lecturers** (*universitetsadjunkt*) are mainly engaged in first and second level education.
- **Postdoctor** (*postdoktor*) is a limited-term (two-year) employment intended for researchers who have obtained a doctorate in the past three years.
- **Doctoral studentships** (*doktorandtjänst*) is a position for third (doctorate) level students, who have a four-year appointment for research training.
- **Veterinary clinicians** (*klinveterinär*) are employed by UDS for clinical work and may also instruct and supervise students.
- **Researchers** (*forskare*), academic personnel whose main task is to conduct research work, may from time to time participate in teaching.

Technical and administrative staff includes all posts, regardless of the work undertaken; administrators, laboratory technicians, veterinary nurses, animal caretakers, etc.

9.1.1. Strategy in order to ensure that all requested competences for the Veterinary Medicine Programme are covered and that staff are properly qualified and prepared for their roles

VHF continuously works with a recruitment plan based on retirement schemes, needs for reinforcements, as well as emerging areas for research and education (see 9.3). For positions where it is required, the advertisement indicates that student instruction is included in the duties. This is then followed up during the employment interviews. New members of staff lacking educational training are expected to undergo a basic course in university pedagogics as soon as possible. For senior positions competences and skills are evaluated in detail with the assistance of external experts. See 9.1.2.1.

9.1.1.2. Who teaches at the Veterinary Medicine Programme?

As part of the 2014 National quality assessment of the Veterinary Medicine Programme

performed by the Swedish Higher Education Authority (UKÄ), a detailed analysis of each individual teacher's education efforts was carried out. Of the total teaching and tutoring efforts (i.e. student – teacher contact hours), **91 % were carried out by teachers holding a veterinary degree**. See Appendix 9.1. [LINK](#)

9.1.2. Formal programme for the selection, recruitment and training to teach and assess students (including continuing education), of the academic staff

9.1.2.1. Selection and recruitment

For a position as *professor*, the applicant has to show documented evidence of scientific and pedagogic skills. A *senior lecturer* must have a PhD degree and moreover documented evidence of pedagogic skills. A *lecturer* must possess an MSc in Veterinary Medicine (or other relevant field) and documented evidence of pedagogic skills. As *veterinary clinician* an MSc degree in Veterinary Medicine is needed.

For nomination of a professor or a senior lecturer, the Faculty Appointments Board is assisted by three (professorships) or two (senior lecturers) external subject experts. Members of the Appointments Board comprise four teachers/researchers and one representative for the students. There are also five alternate members of the Board.

Indefinite-term employment and temporary positions

One of the main lines of thought in the Employment Protection Act (LAS) is that as many as possible should have permanent employment. A permanent position may be terminated via a notice of termination (from the employee or the employer) or resignation.

From the ground rule on indefinite-term employment, there are a number of exceptions. Some examples are;

- **Deputyships** - A person may be employed for a fixed period in a deputyship.
- **Temporary employment** - A person employed for short, limited periods.
- **Postdoctor** - A temporary position for two years.
- **Residency** - Veterinarians at SLU who complete their residency may be offered fixed-term employment.
- **PhD student position** – This 4-year position must always be full-time. If a doctoral student so requests, the position may be for part-time work. Accordingly, if the PhD student also acts as tutor/instructor 20% of full time, the employment period will be 5 years.

9.1.2.2. Training to teach and assess students

Higher education competency courses

The Educational Development Unit (EPU) at SLU is a strategic and support source within educational services and IT education. EPU is also responsible for providing the higher education competency courses and offers a number of basic and more specialised courses:

- Teaching in Higher Education, basic course (3 weeks)
- Teaching in Higher Education, Step Two (2 weeks)
- Course in Grading and Assessment (3 days) - compulsory for examiners (3 days)
- Supervision for Bachelor's Thesis (1 week)
- Course in Doctoral Supervision (3 weeks)
- Project course (2 weeks)
- Project course, advanced course (4 weeks)
- Teaching in the Glocal Classroom (1 week)
- Education for sustainable development; course leaders (1 day)

Continuing education, seminars, etc.

SLU teachers' days - Every second year, EPU arranges a two-day internal education conference primarily intended for those who teach and supervise in the first and second cycle education programmes at SLU. The focus is on current pedagogical issues and includes presentations by leading national and international experts. Several parallel thematic break-out sessions with different group activities and presentations offer opportunities to delve deeper into pedagogical questions.

Inbetween the EPU conferences, UN arranges an education conference for all staff engaged in teaching or supervising students.

VHF teachers' day - VHF annually assembles teachers and other interested staff to an educational day. The 2017 theme was "One day for feedback" and questions covered were how to provide feedback on e.g. "Professional approach", oral presentations and how students interact with each other.

Educational days at the departments - All departments organise regular internal conferences on different educational issues, such as coordination between courses, practical-clinical supervision and examination, and the pedagogy of knowledge, skills and attitude.

9.1.3. Formal programme for the selection, recruitment and training to perform their specific duties (including continuing education), of the support staff

When a support staff position is advertised, it is clearly described if student supervision will be included in the duties. This is always followed up during the employment interviews.

Support staff also attend above (9.1.2.) courses and conferences which are relevant to them in their roles and assignments in the veterinary medicine programme.

Furthermore, UN arranges biannual conferences not only for teachers but also for those in university administration who work with questions related to education.

9.1.4. Formal programme for the appraisal, development, promotion criteria and procedures, support and mentoring of both academic and support staff

Staff development review - All members of staff at SLU shall have an annual prepared and structured discussion with their supervisor (e.g. Head of Department/Division) about their work and their potential to be successful in it. The staff development review aims at bringing individual and departmental development forward by both assessing the past and talking about what can be developed in the future. In this way, the dialogue between the supervisor and the employee becomes an important part of the quality improvement of the department.

Salary discussion - The supervisor shall have individual discussions with his/her members of staff before an upcoming revision of salaries. The purpose of the salary discussion is to evaluate individual results based on a number of pre-set criteria, goals and expectations.

Forum for career development at SLU - The FOCUS project aims to make better use of and develop the skills and resources that exist among SLU employees. Through FOCUS, SLU employees have access to an individual professional discussion partner, whether they want an inventory of their skills and development needs more systematically, or if they need help with individual issues or "dilemmas" related to well-being and development of their work.

Promotion - A senior lecturer employed for an indefinite period may be given the opportunity to be examined for a promotion to professor, depending on the university's strategic requirements. Based on information presented by the Faculty, the Vice-Chancellor makes decisions on a case-by-case basis as to whether such an examination is possible. Promotions include an assessment by external experts and the Appointments Board.

Appointment of docent (reader/associate professor) - The selection and appointment of docents at the faculties of SLU is an important part of the quality assurance regarding research and the supervision of PhD students. Academic staff holding a PhD degree can apply to be assessed by the Research Fellowship Award Board as associate professor (in Swedish "docent"). In order to be assessed, the candidate has to present scientific papers showing continued post-doctoral research progress, attend six weeks of general pedagogic courses and a four-week pedagogic course focused on the supervision of third level (doctorate) students. Experience as PhD co-supervisor is expected. In order to assess the applicant's scientific competence, the Research Fellowship Award Board usually appoints an external expert.

Excellent Teacher - Excellent Teacher is a novel title at SLU which is an important part of the University's quality work in education and educational development. The appointment of excellent teachers gives the university an opportunity to reward and highlight skilled and pedagogically conscious educators. Excellent teachers are expected to participate actively in

their subject area and the University's quality work. Those qualified to apply for the title of excellent teacher at SLU are permanently employed teachers (lecturer, senior lecturer and professor), or permanent employees with equivalent qualifications and duties. Applications are assessed by external peer reviews and a subsequent half-day interview.

Pedagogic prize - Each year, SLU awards two prizes for "exemplary efforts in education and training", one to an individual teacher and one award to a team of teachers. Nominations can be made by students and teachers. The concluding assessment is made by a panel consisting of the Pro Vice-Chancellor, one representative from each faculty and two student representatives. The decision is made by the Vice-Chancellor.

Career grants for researchers - The Vice-Chancellor has taken the initiative to invest in career grants for outstanding researchers in order to reward particularly good performance and to promote excellent research. The career grants are aimed at researchers in two different phases of their careers ("seniors" and "juniors"). Nominations are obtained from the departments via the faculties. The Vice-Chancellor makes a decision regarding the allocation of the grants following external expert assessment.

National Veterinary Specialist Recognition

The title of veterinary specialist has a legally protected status in Sweden and can only be used after an approved application to the Swedish Board of Agriculture. Only a veterinarian who has the formal title "Specialist" is allowed to use this designation.

The Swedish national specialist programme has two stages or steps. Step I leads to specialisation in small animals, equine, bovine, pig or food safety. Step II only exists for small animals. The specialist programmes are a cooperation between the Swedish Veterinary Association and the Swedish Board of Agriculture.

VHF has 25 national specialists; 10 step I and 15 step II. At UDS there are 29 step I and 6 step II specialists. Presently, 8 candidates now attend a programme at SLU for a step I or II degree.

European and American Veterinary Specialisation (Diplomates)

The European Board of Veterinary Specialisation awards European Veterinary Specialist status based on a specialist diploma being awarded by one of the 26 recognised veterinary specialist colleges following the completion of rigorous postgraduate training, education and examinations. In addition, European Veterinary Specialists are required to demonstrate that they still satisfy the criteria for specialist status every 5-years. The American Board of Veterinary Specialties runs a similar system in North America. There are 53 European or American Veterinary Specialists (European/American Diplomates) employed at SLU, 39 at VHF and 14 at UDS. Presently, 21 candidates are registered following a training programme at SLU for a European Veterinary Specialist degree. See also Appendix 9.2. [LINK](#)

Salary supplements for special skills

Salary increases result from regular negotiations with the representatives of the personnel unions and SLU. Negotiated supplements for special skills (e.g. PhD, Docent, Excellent Teacher, National Specialist, Diplomate) are in the range of 160 – 420 € per month.

9.1.5. Formal rules governing secondary employment

Secondary employment is any work carried out alongside a regular employment at SLU. Teachers at SLU shall keep the University informed of any secondary employment that they have, which is related to their employment field. As a general rule, secondary employment is permitted provided that it is not in competition with SLU's activities, does not impair the employee's work, or adversely affects SLU's image, or in any way undermines the public's trust in SLU.

A veterinarian employed at SLU may not conduct or participate in other clinical veterinary services in the counties of Uppsala, Stockholm and Västmanland, i.e. the UDS primary area of activity.

9.1.6. Formal programme of the Establishment for the assessment of teachers by students and its outcome

See Chapter 11.1.1.

9.1.7. Forecast number of FTE academic and support staff for the veterinary programme for the next 3 academic years

The VHF estimates that parts of the research staff will probably increase temporarily as a result of new external funds. At the same time VHF attempts to cover skills shortages in several important areas within existing grants. For a long time, VHF has pointed to significant lack of competence in the form of higher academic positions in the field of the Faculty's primary assignment, important subjects that cannot currently be covered by the Faculty's state funding.

9.1.8. Description of how and by whom the strategy for allocating, recruiting, promoting, supporting and assessing academic and support staff is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

These issues are handled in a similar way to other decision-making, consultation and information issues within SLU, and have been summarised in Chapter 1.1.6.

Table 9.1.1. Academic teacher staff of VHF (FTE)

| Type of contract | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-------------------------|------------|------------|------------|--------------|
| Permanent: | | | | |
| Professors (# promoted) | 49 (21) | 53 (24) | 57 (26) | 53.0 (23.7) |
| Senior lecturers | 44 | 46 | 50 | 46.7 |
| Lecturers | 26 | 29 | 25 | 26.7 |
| Temporary: | | | | |
| PhD student positions | 63 | 68 | 77 | 69.3 |
| Total | 184 | 198 | 209 | 197.0 |

Table 9.1.2. Percentage of veterinarians in VHF academic teacher staff (see also Appendix 9.1.)

| Type of contract | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|------------------|-----------|-----------|-----------|------|
| Permanent | 52.8 | 53.3 | 55.2 | 53.8 |
| Temporary | >80* | | | |

* of PhD students active as instructors in the Vet Med Programme

Table 9.1.3. Support staff of VHF (FTE)

| Type of contract | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|-----------------------|-----------|-----------|-----------|-------|
| Permanent / Temporary | 143 | 140 | 142 | 141.7 |

Table 9.1.4. Research staff of VHF (FTE)

| Type of contract | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|----------------------|-----------|-----------|-----------|-------------|
| Permanent | 66 | 64 | 57 | 62.3 |
| Temporary (postdocs) | 8 | 12 | 15 | 11.7 |
| Total | 74 | 76 | 72 | 74.0 |

Table 9.1.5. Academic and support staff at UDS, FTE April 2017

| | Small animal | Large animal | Ambulatory | Diagn. imaging | Clinical path. | Administration | Total |
|----------------------|--------------|--------------|-------------|----------------|----------------|----------------|---------------|
| Veterinary* | 24.00 | 9.40 | 9.00 | 5.95 | 2.30 | 1.00 | 51.65 |
| Residents | 6.10 | 1.00 | - | 3.00 | 1.00 | - | 11.10 |
| Support staff | 61.53 | 25.40 | - | 7.70 | 10.85 | 6.00 | 111.48 |
| Total | 91.63 | 35.80 | 9.00 | 16.65 | 14.15 | 7.00 | 174.23 |

* incl. 10 PhDs

9.2. Comments

It is very positive that the University provides courses in university pedagogics and requires educational qualifications when recruiting academic staff. However, the VHF considers that the possibilities (i.e. time) for employees to further merit themselves in pedagogics, e.g. by education-related projects as the development of new teaching and student assessment

methods, needs to be strengthened. The initiative "Excellent teacher" is "excellent", today VHF has two such.

The close association between teaching and research is a strength for all academic staff at VHF. The students meet active and engaged teachers also working in research, the scientists meet young people eager to learn. The final degree projects bring young people into labs and research, and some of them stay for life.

The VHF runs the only veterinary programme in Sweden. With the exception of the National Veterinary Institute (SVA) there are no veterinary research institutes in the country. The double role and responsibility of education and research makes it necessary to recruit and to keep academic staff of high standards. In some areas, there are problems for VHF to compete with salaries paid in industry and in practice. In order to be able to keep the most promising academic staff and to recruit external people the VHF has to offer the additional value of a superior working environment.

The number of staff paid from core funding (for teaching as well as for research) has gradually been reduced over many years. At the same time an increasing number are paid from external short-term grants for research.

It has already been emphasized several times that there are major advantages with a combined faculty of veterinary medicine and animal science. The total critical mass of scientific and support staff in a positive way affects the research climate. At the same time, it should not be forgotten that VHF today accounts for eight education programmes, which means that the teaching volume is very large. A gradual reduction in the number of academic teachers combined with increased student numbers has led to a great burden on teaching staff. Long-term, this is not sustainable.

There are now signals from the departments that efficiency demands have been driven too far, with a risk for quality deterioration in first and second cycle education. The savings have resulted in staff numbers which in some departments are at a level that is not sustainable in the long term. With fewer employees who work with first and second cycle education, many are now exposed to a very high workload, as evidenced in the employee survey. There is a great need for staff reinforcements in several subject areas and also a need to further review and strengthen education, both in order to maintain acceptable quality and to improve employee health. Ongoing analyses and recruitment planning aims to strengthen important areas where there is insufficient staffing.

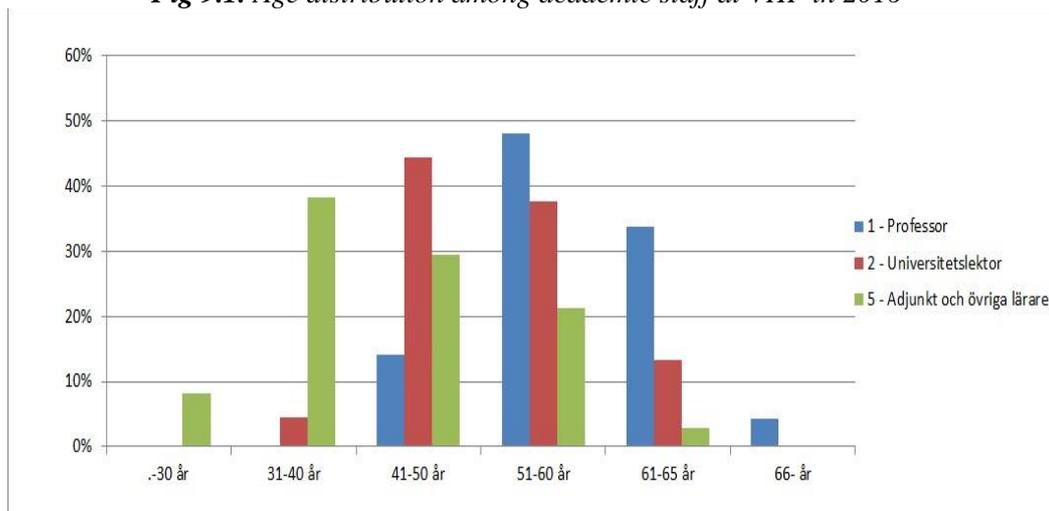
Additionally, there are difficulties for young veterinarians at VHF to attain scientific and pedagogic merits at the same time as they teach and supervise students. Consequently, it is likely that the proportion of veterinarians in teaching positions where a veterinary degree is not a requirement will decrease in the long run. Further, there will be a problem filling higher positions in clinical topics, e.g. in surgery, as they require merits in research and pedagogics as well as international specialist status.

Finally, there is a disadvantage that VHF has very limited opportunities to influence the recruitment of veterinarians to UDS. Important teaching hospital tasks such as supervision of students and research activities are not given appropriate attention in the recruitment process. The cooperation between UDS and VHF in this regard must be improved.

9.3. Suggestions for improvement

Plans for recruitment of senior staff following retirement are in place. Previous savings and the relocation to VHC has led to the postponement of necessary recruitments to teacher and research positions. The retirement age for staff is 65-67 years (see Fig 9.1.). The VHF Strategic and Operating plans underline the needs to recruit senior staff within the Faculty's core subjects and to research lines deemed as being particularly perfectible.

Fig 9.1. Age distribution among academic staff at VHF in 2016



10. RESEARCH PROGRAMMES, CONTINUING AND POSTGRADUATE EDUCATION

Research programmes - general description of research activities of SLU and VHF

SLU is a research intensive university, research and doctoral education account for 70 per cent of SLU's turnover.

“Future” research platforms

As part of the University research strategy 2017-2020, the Vice-Chancellor has decided to establish four 'Future' research platforms. The aim of the platforms is to integrate different scientific fields and encourage cooperation with different actors in society. VHF's involvement in the four platforms varies, but from a veterinary and animal science perspective there are important research challenges in all four.

- **SLU Future Forests** focuses on sustainable forestry in a wide sense, and covers the importance of forests and forestry for the development of a bio-based economy, adaption to climate change, the ecosystem services provided by forests and decision-making processes where the views of different groups on forestry are taken into account.
- **SLU Future Food** focuses on Swedish food production and food in a wide sense, both animal and vegetable production. Several aspects are covered, from soil use and primary production to processing, consumption and residual products.
- **SLU Urban Future** focuses on urban inhabitants and their need for green environments with a broad sustainability perspective, including urban supply systems and the interaction with the surrounding countryside.
- **SLU Future Animals and Health** focuses on the health and quality of life of animals, as well as the interface between people, animals and nature. It also covers the importance of animals and nature for the health and well-being of humans. VHF is responsible for this platform.

SLU and VH Faculty strategy for research 2017-2020

See 1.1.2. - 1.1.3. and Strategy for the VH Faculty 2017–2020, Appendix 1.2. [LINK](#)

Postgraduate education – the PhD programme at SLU

A doctorate degree should be completed in four years of full-time study or equivalent that is 240 ECTS. As part of their PhD studies, students will produce a written thesis, consisting of a synthesis based on three or more papers, and at least one of them accepted by an international scientific journal with a referee system. Each candidate is required to present and defend their thesis at a public seminar with an external reviewer appointed by the faculty board. An examining committee will decide whether candidates pass or fail. For details, see Appendix 10.1. [LINK](#)

The PhD Programme at VHF

A doctoral education at VHF aims at giving the doctoral student a scientific way of working, subject knowledge and training in pedagogics and leadership.

The following doctoral education subjects are offered at VHF:

- Animal Science
- Bioinformatics
- Biology
- Biomedical Science
- Technology
- Veterinary Nursing Science
- Veterinary Science

The Graduate School for Veterinary Medicine and Animal Sciences (GS-VMAS)

In 2016, a “research school” was established within VHF by merging three former graduate schools for Veterinary Medicine and Animal Science. The “new” graduate school supports all graduate students and research topics at the Faculty and coordinates a number of PhD courses, and arranges seminars and workshops.

Some courses are given regularly while others are given on the basis of suggestions from supervisors and postgraduate students. The PhD students also attend courses common for SLU or given by the other faculties, and outside SLU.

VHF’s priorities for postgraduate education 2017-2020 are presented in the Strategy for the VH Faculty 2017–2020 – Appendix 1.2. [LINK](#)

10.1.1. Description of how the research activities of the Establishment and the implication of most academic staff in it contribute to research-based first and second cycle veterinary education.

A significant majority of the teachers are scientifically credited, i.e. have at least a PhD degree, and are active in research. It is therefore natural that the teaching includes many examples from ongoing research and development work. In the clinical practical teaching, current diagnostic and treatment studies are also presented to the students.

10.1.2. Description of how the postgraduate clinical training courses of the Establishment contribute to first and second cycle veterinary education and how potential conflicts in relation to case management between postgraduate and first and second cycle students are avoided.

It is considered to be an asset that postgraduates participate as tutors/instructors in the training of the veterinary students. There is no explicit competition for clinical cases as the first, second and third cycle students work in different ways and in different roles.

10.1.3. Description of how first and second cycle students:

- ***are made aware of the importance of evidence-based medicine, scientific research and lifelong learning;*** Introduction to evidence-based medicine takes place through lectures and exercises during the third year (See Chapter 3). In the context of practical clinical work and case discussions, these aspects come naturally and therefore form an important part of the clinical education.
- ***are initiated to bibliographic search, scientific methods and research techniques, and writing of scientific paper;*** See Chapter 6.1.6. and the presentation of “Master’s degree project” below.
- ***are offered to participate to research programmes on a non-compulsory basis;*** Master’s degree projects are often related to ongoing PhD student projects and other research projects. There are also instances where students are “employed” for help with sampling and other activities in research projects. Sometimes, the researchers advertise for assistance from first and second cycle students, and sometimes recruitment is simply by means of mentioning the possibility to assist in a project during a lecture.

Master's degree project in Veterinary Medicine, 30 ECTS

This final semester course will give the student opportunities to gain in-depth knowledge in a subject within veterinary medicine as well as independent planning and investigation of a research-related problem. The course includes the presentation of a graduation thesis.

The degree project mainly consists of a supervised scientific research project within veterinary science. The work process shall include identification and formulation of issues and questions in order to solve a scientific research task within a given framework, to independently search for and to use scientific literature of relevance, to apply scientific methods and to present the various parts of the project, both in writing and orally. The written report is published through Epsilon. The oral presentation is conducted for an academic audience and students are appointed as "opponents" at each other's presentations.

10.1.4. Continuing Education Programmes

In some of European countries, veterinarians need to prove that they have spent a minimum number of hours each year or during a certain period of time on CPD in order to retain their licence to practise. This is not so in Sweden.

CPD courses for active professionals

Contract education is regulated by Ordinance (2002:760) for contract education at the HEIs and Regulations of the Swedish National Agency for Higher Education concerning contract education at universities and higher education institutions (HSVFS 2003:3). Individuals may not buy places at a contracted course. Companies and other organisations, on the other hand, have a right to do so. In reality, this means that a veterinarian who is employed by or runs a firm can "buy" a course place, while other veterinarians cannot do so.

The rules for contract education have resulted in a drastic drop of VHF's own range of CPD courses. Instead, many teachers, researchers and clinicians at SLU are engaged in courses organised by external actors, such as SVF/SVS, VeTA-bolaget, Gård och Djurhälsan, and the major veterinary companies (e.g. AniCura, Evidensia). As a result, formal agreements are now in place or are being negotiated between VHF and a couple of the course suppliers.

The CPD courses for veterinary professionals offered by VHF and UDS 2014-2016 are summarised in Table 10.1.4. There are CPD courses directed to other groups in industry, livestock farming, etc.; these are not included and are mainly given by the "animal science" departments.

One-day conferences and seminars are not considered to fall under the regulations for contract education. A number of conferences, seminars and evening lectures are given by the VHF and UDS each year, often aiming at a wide audience, including lay people but often also attended by veterinarians and veterinary nurses.

The annual Veterinary Congress, which is the major CPD meeting for Swedish veterinarians, is arranged by the Swedish Veterinary Association, and hosted by SLU at Ultuna Campus. A number of parallel themes covering different species and subjects are offered during this two-day meeting. Veterinarians employed by SLU can attend this congress at the department's expense.

National Veterinary Specialist Recognition

Presently, 8 candidates are registered following a training programme at SLU for a step I or II degree.

European and American Veterinary Specialisation (Diplomates)

Presently, 21 candidates are registered following a training programme at SLU for a European Veterinary Specialist degree.

Supplementary education for veterinarians with degrees from countries outside the EU/EEA and Switzerland (TU-VET), 120 ECTS

Individuals from outside the EU/EEA/Switzerland area holding a Degree in Veterinary Medicine which comprised at least five years full-time studies, can apply for a Swedish veterinary license at the Swedish Board of Agriculture. A possible decision from the Board may be that the applicant has to pass the supplementary education (TU-VET), which is organised by SLU. With exception of the first courses in the TU-VET programme, the TU-VET students join regular Veterinary Programme courses. See [LINK](#)

10.1.5. Forecast number of students registered for postgraduate programmes for the next 3 academic years

The forecast for the number of post-graduate students is guarded, no major changes are expected.

10.1.6. Description of how and by whom research, continuing and postgraduate education programmes organised by the Establishment are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

These issues are handled in a similar way as other decision-making, consultation and information issues within SLU and have been summarised in Chapter 1.1.6.

Table 10.1.1.a. Number of VHF employees registered at postgraduate clinical training

| Training | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|--------------------------------------|-----------|-----------|-----------|-------------|
| Swedish specialist candidates | | | | |
| Companion animals step 1 | - | 1 | 1 | 0.7 |
| Internal medicine step 2 | - | - | 1 | 0.3 |
| Diplomate candidates | | | | |
| ACVSMR | 1 | 1 | 2 | 1.3 |
| ECAR | 2 | 2 | 3 | 2.3 |
| ECEIM | 1 | - | - | 0.3 |
| ECPHM | 2 | 1 | 1 | 1.3 |
| ECVIM-CA | 1 | 3 | 3 | 2.3 |
| ECVP | 3 | 3 | | 2.0 |
| ECVPH | 1 | 1 | 1 | 1.0 |
| Total | 11 | 12 | 12 | 11.7 |

Table 10.1.1.b. Number of UDS employees registered at postgraduate clinical training

| Training | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|--------------------------------------|-----------|-----------|-----------|-------------|
| Swedish specialist candidates | | | | |
| Companion animals step 1 | 8 | 5 | - | 4.3 |
| Diplomate candidates | | | | |
| ECVCP | 2 | 1 | 1 | 1.3 |
| ECVDI | 6 | 4 | 4 | 4.7 |
| ECVS | 2 | 3 | 2 | 2.3 |
| Total | 18 | 13 | 7 | 12.7 |

Table 10.1.2. Number of VHF students active (registered) at postgraduate research training

| Degree | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|--------------|------------------|------------------|------------------|------------------|
| PhD | 149 (157) | 168 (172) | 169 (179) | 162 (169) |
| Licentiate | 12 (16) | 13 (15) | 10 (13) | 11.5 (15) |
| Total | 161 (173) | 181 (187) | 179 (192) | 174 (184) |

Table 10.1.3. Number of students registered at other postgraduate programmes (including any external/distance learning courses)

| Programmes | 2015/2016 | 2014/2015 | 2013/2014 | Mean |
|---|-----------|-----------|-----------|------|
| <i>No such programmes or courses are offered by VHF</i> | | | | |

Table 10.1.4. Number of attendees to continuing education courses *for veterinarians* provided by VHF and UDS

| Courses | 2016 | 2015 | 2014* | Mean |
|---|-------------|-------------|--------------|--------------|
| Companion animals | | | | |
| Neurology, companion animals | 76 | | | |
| Ophthalmology for small animal practice | 21 | | | |
| Orthopedics, dog and cat | 39 | | | |
| Examination by palpation | 15 | | | |
| Fracture treatment | 17 | | | |
| Diagnostic imaging - CT | 20 | 15 | | |
| Ultrasound diagnostics, basic | 20 | 60 | 20 | |
| Diagnostic imaging | 25 | | 20 | |
| Anesthesiology | 20 | | 22 | |
| Hematology | | 16 | | |
| Ultrasound diagnostics, basic | | 28 | | |
| Pet rabbits, guinea pigs and rodents-1 | | 46 | | |
| Pet rabbits, guinea pigs and rodents-2 | | 46 | | |
| Equine | | | | |
| Ultrasound diagnostics, basic | 8 | | | |
| Anesthesiology | 15 | | | |
| Artificial insemination | 18 | | 18 | |
| The hoof | 34 | 34 | 34 | |
| Equine dentistry, "horse's mouth" | 112 | 60 | 30 | |
| Pain assessment (ext participants) | | 4 | | |
| The foal in general practice | | | 15 | |
| Total | 440 | 309 | 159 | 302.7 |
| For veterinarians and nurses | | | | |
| Care of the surgical patient (vet nurses) | 33 | | | |
| Basic anesthesiology (vet nurses) | 40 | | | |
| Anesthesiology, cont. (vet nurses) | 45 | | | |
| Cat ethology (vets and vet nurses) | 45 | | | |
| Diagnostic Imaging (vets and vet nurses) | | 150 | | |
| Anesthesiology (vet nurses) | | | 24 | |
| Diagnostic imaging (vet nurses) | | | 15 | |

*The range of continuing education courses in 2014 and 2015 was influenced by the relocation to VHC.

10.2. Comments

UKÄ's evaluation of the third cycle (PhD) education in veterinary medicine at VHF was published in June 2017. The international assessment group determined that the education meets all the quality requirements and concluded the education should be rated "high quality". That was also the final decision by UKÄ.

10.3. Suggestions for improvement

There are strong wishes for combining third cycle (PhD) studies with European specialist education, which could attract young veterinarians to the academic sphere. Today, the combination is unfortunately not possible in some European Boards.

The CPD activities at VHF and UDS are not coordinated but ought to be.

Table 10.1.5. List of major externally funded veterinary research programmes in VHF which were on-going during the last full academic year prior the Visitation (2015/2016)*

| Scientific topics | Grant/year 1 000 € | Duration years | Main source(s) |
|--|-----------------------|-------------------|--------------------|
| Next generation DNA sequencing | 526 | 5 | FORMAS |
| Collaboration National Univ Rwanda | 505 | 4 | UHR |
| Separation of X and Y spermatozoa | 359 | 2 | IMV Technologies |
| Animal welfare in aquaculture | 358 | 3 | FORMAS |
| Viral metagenomics and bioinformatics | 305 | 3 | FORMAS |
| Selection traits for improved poultry welfare | 238 | 3 | FORMAS |
| Parasitic diseases and animal welfare | 218 | 3 | FORMAS |
| Orthopedic pain In large animals | 217 | 3 | FORMAS |
| Fish slaughter and animal welfare | 216 | 3 | FORMAS |
| Mast cells in bacterial infections | 199 | 3 | FORMAS |
| Unique protein fragments in skeletal disease | 198 | 3 | FORMAS |
| Colostrum, calf growth and health | 180 | 3 | FORMAS |
| Ascaridia galli in laying hens | 176 | 3 | FORMAS |
| Genes associated with adverse health effects in dogs | 174 | 3 | FORMAS |
| Strept. equi vaccine development | 163 | 1 | Intervacc AB |
| Asymmetries of equine gaits, biological variation or lameness? | 159 | 3 | FORMAS |
| Risk factors for E.coli “super shedders” in cattle | 159 | 3 | FORMAS |
| Data from official animal welfare inspections in research | 156 | 3 | FORMAS |
| Transport of slaughter pigs | 155 | 3 | FORMAS |
| Milk microflora composition | 154 | 3 | FORMAS |
| EU Reference Laboratory for Zootechnics | 153 | 2 | EU Commission |
| Antibiotics and ab resistance in organic dairy farms | 152 | 3 | FORMAS |
| Immunomodulation and porcine vaccines | 151 | 3 | FORMAS |
| Image analysis in dairy farms – tool for improved welfare | 145 | 3 | FORMAS |
| Orthopedic health in farrowing sows – selection | 140 | 3 | FORMAS |
| Treponema invasion mechanisms | 140 | 3 | FORMAS |
| PROLIFIC – improvement of fertility in cows | 138 | 4 | INRA |
| Strept. equi in Sweden – tools for diagnosis and eradication | 134 | 3 | FORMAS |
| Livestock in the city | 126 | 3 | Swed. Res. Council |
| Hormonal disruptors | 123 | 5 | Stockholm Univ. |
| Prevention of infectious diseases in cattle | 121 | 3 | Swed. Res. Council |
| Intestinal flora in piglets, importance for feeding behaviour | 121 | 3 | FORMAS |
| The horse’s “pain face” | 120 | 3 | FORMAS |
| Peste des petits ruminants – susceptibility factors | 118 | 3 | Swed. Res. Council |
| Surfactant for treatment of airway diseases | 116 | 3 | FORMAS |
| Improved fertility in Nordic dairy cows | 112 | 5 | FORMAS |
| Schmallenberg host-virus interaction | 111 | 3 | Swed. Res. Council |
| FMDV infection, host response and vaccination | 110 | 3 | FORMAS |
| Ending tail docking and tail biting in EU | 107 | 3 | FORMAS |
| Colostrum quality and uptake by calves | 105 | 3.6 | SLF |
| PrP polymorphism, relation to moose and human health | 105 | 2 | FORMAS |
| Mobile cattle slaughter – animal welfare and meat quality | 105 | 2 | Sv. Djurskyddsför. |
| | | | |

*a selection has been made from the 385 VHF research projects which received external grants in 2015/2016. Veterinary research programmes with grants exceeding 100 000 € per year are included.

FORMAS = The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning; SLF = Swedish Farmers’ Research Council; UHR = The Swedish Council for Higher Education

11. OUTCOME ASSESSMENT AND QUALITY ASSURANCE

Previous international and national evaluations

A summary of evaluations since 1990 is presented in Appendix 11.1. [LINK](#)

A new national quality assurance system

UKÄ, the Swedish Higher Education Authority, has, in 2017, introduced a new model for the evaluation of the quality of higher education. A central feature is that the HEIs and UKÄ share responsibility for assuring the quality of higher education. Evaluations are based on the Higher Education Act, the Higher Education Ordinance and the principles for quality assurance laid down in the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

Briefly, there are four different types of assessments referred to as components:

- Appraisals of entitlement to award qualifications
- Reviews of the HEIs' quality assurance procedures
- Evaluations of programmes
- Thematic evaluation

The assessments generally include three different perspectives:

- The perspectives of first and second-cycle students and of doctoral students
- The labour market perspective
- The gender equality perspective

Together the four components take a comprehensive approach on quality assurance of higher education in Sweden. The aspects for the assessments to focus on are grouped into a number of areas. The aspect areas are:

- Governance and organisation
- Environment, resources and area
- Design, implementation and outcomes
- Follow-up, measures and feedback

All assessments are made by independent panels of assessors appointed by UKÄ on the basis of a nomination procedure in which the HEIs, student unions and social partners will propose candidates. The panels consist of representatives of first and second-cycle students and of doctoral students, labour market representatives and subject specialists from the higher education sector. The final decision is made by UKÄ on the basis of the reports from the panels of assessors. For details of the national QA system, use this [LINK](#).

11.1.1. Description of the global strategy of the Establishment for outcome assessment and Quality Assurance (QA)

Parts of the presentation below are taken from the *Framework for the quality assurance of courses and study programmes at SLU*, Appendix 11.2. [LINK](#)

SLU's systematic quality work is based on ESG 2015. Along with the Higher Education Act - HL (1992: 1434), the Higher Education Ordinance - FL (1993: 100), The Ordinance of the Swedish University of Agricultural Sciences – FSLU (1993: 221) and SLU's strategy for 2017-2020, the ESG forms the framework for quality assurance in education at first, second and third cycle levels.

SLU specifies the quality work in six quality areas, which support the education process in its various phases:

- Recruitment, selection (third level), admission and introduction to studies (ESG 1.4, ESG 1.8, HL 1 kap, 5§),
- Study and learning environment (basic and advanced levels), research and working environment (graduate level) (ESG 1.6, ESG 1.7, HL 1 kap 4§, HL 1 kap 4a§, HL 1 kap 5§),
- The programme's structure, content and results (ESG 1.2, ESG 1.3, ESG 1.4, ESG 1.5, ESG 1.6, ESG 1.9, HL 1 kap 3§, HL 1 kap 5§, HL 1 kap 8§, HL 1 kap 9§, FSLU bilaga 2: examensordning),

- Teaching and tutoring (ESG 1.3, ESG 1.5),
- Education management and guidance (ESG 1.2, ESG 1.3, ESG 1.4, ESG 1.6, ESG 1.7, FL 4§, FL 7§),
- Transition to working life and career (HL 1 kap 2§, HF 1 kap 11§).

The internal quality assurance procedures of SLU will be reviewed by UKÄ in 2019. The review will check whether the quality assurance procedures at SLU results in high quality and contributes to quality development. A panel of assessors will review material that comprises a self-evaluation, student submissions, interviews and site visits and will then submit an overall assessment and its recommendation to UKÄ. A decision will be made by UKÄ stating whether SLU's quality assurance procedures are approved or not.

Quality dialogues project in 2017

During 2017, SLU is running a quality assurance pilot project, focusing on quality dialogues between UN and the programme boards as well as between the Vice-Chancellor and the faculty boards (for doctoral programmes). During the spring of 2017, a dialogue structure and templates for the supporting documents that need to be submitted was established. The dialogues will be conducted in September–October. An evaluation of the pilot round will be carried out in November and a permanent system based on the experiences and observations will be established in 2018.

Quality work within SLU's courses and programmes

SLU strives to provide high-quality programmes and courses. This is important for the students, but also for society as a whole and future research. Quality work for Bachelor's, Master's and doctoral education is implemented at all levels within SLU and represents a joint concern for all our staff members and students.

The quality work is based on regulations, the University's strategic objectives as well as the expectations of students, teachers and the surrounding community that courses and programmes be of high quality. The systematic quality work at SLU aims to support a culture of shared definitions of good quality as a starting point in all work related to teaching and developing support and control systems.

Responsibility and implementation of QA at first and second cycle levels

The overall responsibility for the education at first and second cycle levels rests with UN. In the case of the Veterinary Medicine Programme, the Faculty Board appoints the members of the PN-VH which shall ensure that the programmes and courses are of high quality. PN-VH is chaired by the Associate Dean for Education. For each programme, PN appoints a Programme Director of Studies (PSR) responsible for developing the programme's academic progression and quality. The PSR-V is assisted by a Programme Committee (PR-V) for the development and management of the VMP.

The heads of department are responsible for the provision of education of highest class within each departmental area, within the framework of assigned resources. They are assisted by departmental directors of studies. The department supervising the course appoints a Course Coordinator for the implementation of the course.

Course evaluations

SLU must enable students who are participating in or have completed a course to express their experiences of and views on the course through a course evaluation. Course evaluations must be followed up and used as a tool for developing the quality of courses and programmes. The course coordinating department (or equivalent) is responsible for summarising and following up on each course evaluation, unless the supervising faculty has decided that this is to be done in a different way.

Results and conclusions from course evaluations must be reported in a common electronic course evaluation system (Evald in Slunik) and made available to the students via the student web. The results reported are numerical results for the questions that are mandatory to all courses, as well as a summary of the comments of students and teachers. At the start of a course, the results of the previous course evaluation are presented, along with any changes resulting from the course evaluation. Statistics are available on course evaluation reports.

Every student has the right to make a course evaluation for each course they have attended. This is an important opportunity for them to influence their education and is part of SLU's quality assurance procedures.

How course evaluations are handled at the Veterinary Medicine Programme

At the start of each course, students are reminded that by the end of the course they are expected to fill in a course evaluation. At this time, a student representative is appointed by the Veterinary Students' Union, VMF, among those attending the course. They help to collate the results of the evaluation. The student representative should perform the following:

- Complete the course evaluation themselves and look at other responses submitted.
- Hold a discussion on the quality of the course and the results of the evaluation with the students who completed the course.
- Together with the course leader, the student representative has the final responsibility for the "student comments section" of the evaluation report.

The course leader then goes through the evaluation result with the teachers involved in the course, comments in the "Course leader comments section", and submits the result to the Programme Director of Studies. The evaluations for all programme courses given during an academic year are compiled and followed up by the PSR-V and the PR-V. The compilations are then reported at the PN-VH and the Faculty board.

Programme evaluations

Students who are participating in or have completed a degree programme must be given the opportunity to express their experiences of and views on the degree programme through a programme evaluation organised by the PN. Programme evaluations must be followed up and used as a tool for developing the quality of the programme. The PN is responsible for summarising and following up programme evaluations.

Responsibility and implementation of QA at third cycle (PhD) level

The Vice-Chancellor has delegated the overall responsibility for the quality of postgraduate training to the faculty boards, which in turn have delegated parts of the running and the quality assurance to a Postgraduate Education Board (Fun).

The heads of department are responsible for the quality of PhD training and for developing a good spirit and creative environment for employees and PhD students, including social conditions.

The chairman of Fun is, at the suggestion of the Dean, a member of the University's Council for graduate education (Fur). Fur's function is to handle overall strategic issues relating to support, and to coordinate, stimulate and develop doctoral education. For example, this means the responsibility for SLU's range of interfaculty "basic" courses at graduate level and for the training of PhD supervisors.

Closing the loop of the QA Plan-Do-Check-Act (PDCA) cycle

The above texts have described how the various responsible bodies perform their QA work and have also discussed how the PDCA cycle is completed and the experiences brought back to the organisation so that it can be developed. However, the PDCA cycle looks very different depending on what is being evaluated;

For *single courses*, the time from the actual running of the course to evaluation and possible action is short. Quality-enhancing measures are usually implemented in the subsequent academic year. Decisions can often be taken far out in the organisation, at the departmental or programme level. Teachers and students on the course are directly involved and responsible for adjustments.

At *programme level*, the time for implementing quality improvements is significantly longer. A comprehensive development of the Veterinary Medicine Programme requires nearly ten years until the first students graduate.

In order to ensure that the QA work continues and that the PDCA loop is actually completed, the Vice-Chancellor has, amongst other things, established quality dialogues as a complement to and support for regular quality assessments.

Quality dialogues

The results of SLU's QA work will be followed up by recently introduced quality dialogues, which will be carried out on a regular basis. The purpose of the dialogues is to ensure that the courses are of high quality, and to contribute to quality enhancement.

Quality dialogues will take place between PNs and the UN (first and second cycle education) and between the FNs and the Vice-Chancellor (third cycle education). The quality dialogues will be carried out according to a specified structure.

Quality dialogues result in a development plan that will form the starting point for the next quality dialogue period.

Assessment

Quality dialogues and, where appropriate, external audits, form the basis for the UN and the Vice-Chancellor to judge whether the quality process is sufficient to ensure that the activities are of good quality. In cases where the quality work is not deemed to be sufficient, the UN and the Vice-Chancellor decide on appropriate action. The Vice-Chancellor and UN annually inform SLU's Board of their assessments.

Documentation from the dialogues will be published on SLU's Web along with the UN's, the Vice-Chancellor's and the University Director's assessment.

External review

The UN and the Vice-Chancellor can initiate an external review of education. Such an initiative could be taken if quality dialogues show inadequate quality work and no real improvement can be seen in the feedback quality dialogues.

SLU participates in the regular European evaluations of training for licenced professions (veterinarians, veterinary nurses).

Elements of external review can also occur in quality work in other courses. In addition, the higher education authority implements external evaluations by a selection of training courses.

Activity monitoring of administration and library

Monitoring and development of the quality of the administration and the library's activities are part of the regular planning and operational follow-up.

Internal auditing

The Internal Audit Unit at SLU serves the University Board and management. It independently audits all activities at SLU.

The Internal Audit Unit also participates in inquiries and assists in development and change processes, primarily within the financial management area. The University Board decides annually on the Internal Audit's audit plan. Results of completed audits are continually reported the University Board, the management and to those that the audit concerns.

In 2016-2017 a review of the quality and efficiency of the education was carried out. The scope of the audit was limited to course and programme evaluations, alumni activities and the use of teaching premises. Findings and recommendations included the need to increase the students' preparedness to participate in course evaluations, because the response rate varies considerably between different courses.

11.1.2. Description of the form by which the strategy, policy and procedures are made formal and are publicly available

How and where decisions are taken and made publicly available are described in Chapter 1.1.6. (Decision, implementation, assessment and revision procedures)

11.1.3 Description of the regular publication of up to date, impartial and objective information, both quantitative and qualitative, about the educational programmes and awards the Establishment is offering

Details about information the channels are provide in Chapters 1.1.6. and 7.1.1.

11.1.4. Description of the QA processes not yet described in the other 10 Standards
See above 11.1.1.

11.1.5. Description of how and by whom the QA strategy of the Establishment is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

See Chapters 1.1.6., 9.1.2.2. and 11.1.1.

11.2. Comments

The commitment of students and teachers to teaching issues is a strength for VHF. Discrepancies identified are handled at course or programme levels. Course and programme evaluations play an important role, but unfortunately the response rate is not always as high as desired.

11.3. Suggestions for improvement

VHF is now awaiting the further development of QA in progress at national and university level. We have many years of experience in active quality work, but welcome the further efforts that are now being made.

ESEVT should have standing as "national" QA body in veterinary education also in Sweden.

LIST OF ESEVT INDICATORS

| Staff and students | | |
|--|--|-------|
| 11 | n° of FTE academic staff involved in veterinary training / n° of undergraduate students | 0.195 |
| 12 | n° of FTE veterinarians involved in veterinary training / n° of students graduating annually | 0.960 |
| 13 | n° of FTE support staff involved in veterinary training / n° of students graduating annually | 0.600 |
| Types of training | | |
| 14 | n° of hours of practical (non-clinical) training | 1155 |
| 15 | n° of hours of clinical training (excl. electives) | 821 |
| 16 | n° of hours of FSQ and VPH training | 209 |
| 17 | n° of hours of extra-mural practical training in FSQ and VPH | 35 |
| Patients available for intra-mural clinical training | | |
| 18 | n° of companion animal patients seen intra-murally / n° of students graduating annually | 34.9 |
| 19 | n° of ruminant and pig patients seen intra-murally / n° of students graduating annually | 0.77 |
| 110 | n° of equine patients seen intra-murally / n° of students graduating annually | 7.93 |
| 111 | n° of rabbit, rodent, bird and exotic patients seen intra-murally / n° of students graduating annually | 1.41 |
| Animals/herds/units available for extra-mural clinical training | | |
| 112 | n° of companion animal patients seen extra-murally / n° of students graduating annually | na |
| 113 | n° of individual ruminants and pig patients seen extra-murally / n° of students graduating annually | 13.04 |
| 114 | n° of equine patients seen extra-murally / n° of students graduating annually | 14.15 |
| 115 | n° of visits to ruminant and pig herds / n° of students graduating annually | 1.84 |
| 116 | n° of visits to poultry and farmed rabbit units / n° of students graduating annually | 0.013 |
| Necropsies available for clinical training | | |
| 117 | n° of companion animal necropsies / n° of students graduating annually | 2.427 |
| 118 | n° of ruminant and pig necropsies / n° of students graduating annually | 0.933 |
| 119 | n° of equine necropsies / n° of students graduating annually | 0.853 |
| 120 | n° of rabbit, rodent, bird and exotic pet necropsies / n° of students graduating annually | 0.253 |
| Indicators used only for statistical purposes | | |
| 121 | n° of FTE specialised veterinarians involved in veterinary training / n° of students graduating annually | 0.773 |
| 122 | n° of PhD-students graduating annually / n° of students graduating annually | 0.400 |

GLOSSARY

Abbreviations

EAEVE – European Association of Establishments for Veterinary Education EBVS:
ECTS – European Credit Transfer System
ENQA – European Network for Quality Assurance in Higher Education
EPT – External Practical Training
ESEVT – European System of Evaluation of Veterinary Training
ESG – Standards and Guidelines for Quality Assurance in the European Higher Education Area
FN-VH – Faculty Board, Faculty of Veterinary Medicine and Animal Science
FOMA – Environmental monitoring and assessment
FSLU – Ordinance of SLU
FSQ – Food Safety and Quality
FTE – Full-Time Equivalent
HEI – Higher Education Institution
HF – Higher Education Ordinance
HL – Higher Education Act
KTC – Clinical Training Centre
KV – Department of Clinical Sciences
PN-VH – Programme Board for Education, Faculty of Veterinary Medicine and Animal Science
PR-V – Programme Committee, Veterinary Medicine Programme
PSR-V – Programme Director of Studies, Veterinary Medicine Programme
QA – Quality Assurance
SER – Self Evaluation Report
SLU – The Swedish University of Agricultural Sciences
Sluss – The Joint Committee of Student Unions at the Swedish University of Agricultural Sciences
SOP – Standard Operating Procedure
SVF – Swedish Veterinary Association
UDS – University Animal Hospital (e.g. VTH)
UHR – The Swedish Council for Higher Education
UKÄ – The Swedish Higher Education Authority
UN – The Board of Education
VHC – The Centre for Veterinary Medicine and Animal Science
VHF – The Faculty of Veterinary Medicine and Animal Science
VMF – Veterinary and Veterinary Nurse's Student Union
VPH – Veterinary Public Health
VTH – Veterinary Teaching Hospital

LIST OF APPENDICES

1. OBJECTIVES AND ORGANISATION

- 1.1. SLU Strategy 2017-2020
- 1.2. Strategy for the VH Faculty 2017-2020
- 1.3. Operating plan VH for the Faculty 2017-2020 (in Swedish)
- 1.4. Evaluation of the operations at the University Animal Hospital

2. CURRICULUM

- 2.1. Veterinary Medicine Programme syllabus 2007
- 2.2. Veterinary Medicine Programme syllabus 2017
- 2.3. A comparison of the 2007 and 2017 syllabi
- 2.4. Day One Competences (in Swedish)

3. FACILITIES AND EQUIPMENT

- 3.1. VHC – Centre for Veterinary Medicine and Animal Science SLU Uppsala
- 3.2. The Swedish Livestock Research Centre

6. LEARNING RESOURCES

- 6.1. Systems for communication with students

7. STUDENT ADMISSION, PROGRESSION AND WELFARE

- 7.1. Safety and security

8. STUDENT ASSESSMENT

- 8.1. Assessment and grades
- 8.2. Examination regulations at SLU

9. ACADEMIC AND SUPPORT STAFF

- 9.1. Teachers engaged in the Veterinary Medicine Programme
- 9.2. List of European and American Diplomates March 2017

10. RESEARCH PROGRAMMES, CONTINUING AND POSTGRADUATE EDUCATION

- 10.1. Guidelines for third-cycle (doctoral) education 2015
- 10.2. List of Degree (MScVetMed) projects 2014-2016
- 10.3. List of Doctoral (PhD) theses 2014-2016
- 10.4. List of peer-reviewed international publications 2014-2016

11. OUTCOME ASSESSMENT AND QUALITY ASSURANCE

- 11.1. Previous international and national evaluations
- 11.2. Framework for the quality assurance of courses and study programmes at SLU