



**University of Veterinary Medicine Vienna**



**Self Evaluation Report (SER)**

for the

**European Association of Establishments  
for Veterinary Education**

**EAEVE**

Vienna  
February 2006





# University of Veterinary Medicine Vienna



## Self Evaluation Report (SER)

Responsible for the content: Vice-rector for study affairs A. Univ. Prof. Dr. Wolfgang Künzel

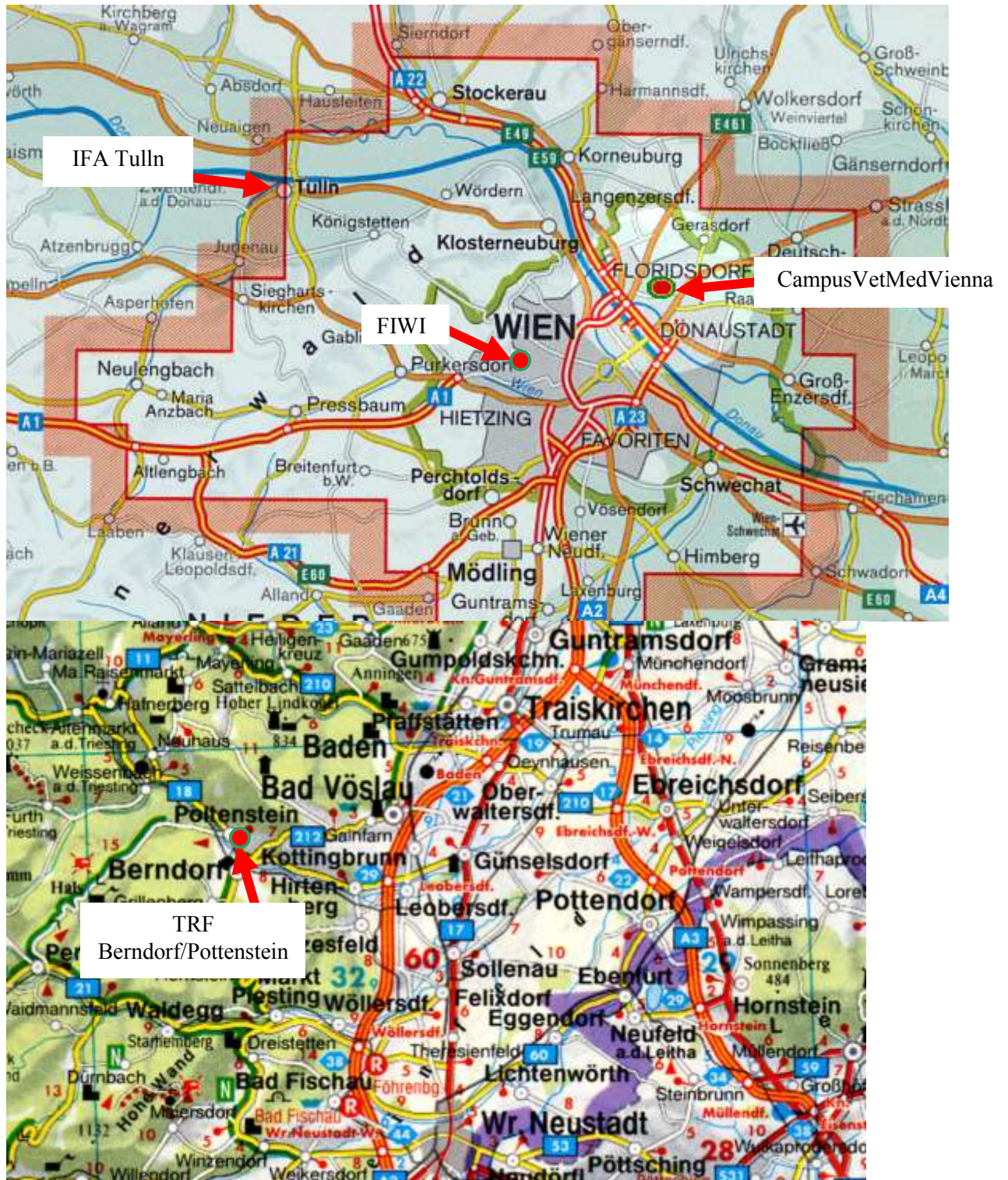
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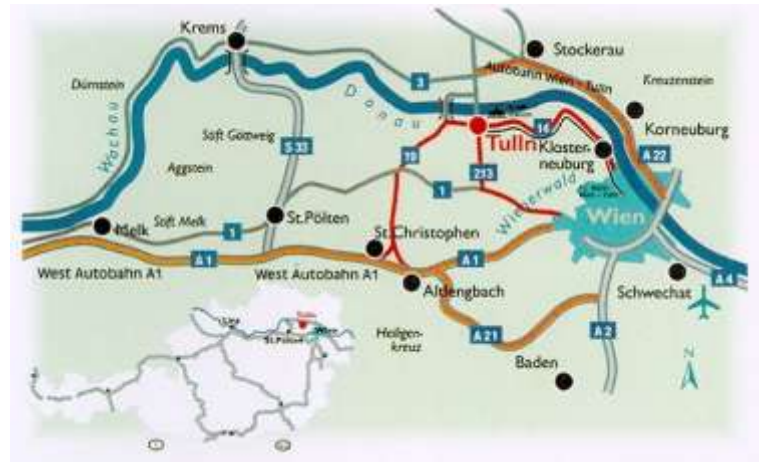
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## GENERAL INFORMATION

Location of the **Campus** and of the Research Institute of Wildlife Ecology (**FIWI**) in Vienna, of the Teaching and Research Farm (**TRF**) south of Vienna in Berndorf/Pottenstein and of the Research Institute of Biotechnology in Animal Production at the Department for Agrobiotechnology (**IFA-Tulln**) north-west of Vienna



Location of the Research Institute of Biotechnology in Animal Production at the Department for Agrobiotechnology (IFA-Tulln) north-west of Vienna



**Research Institute of Wildlife Ecology** located in the outskirts of Vienna at Wilhelminenberg (Savoyenstraße 1, A-1160 Vienna)



Main institute building

Research enclosure



Location of the **Campus** in the 21<sup>st</sup> district of Vienna and public transport connection



View of the **Campus** from the Donaufelderstrasse



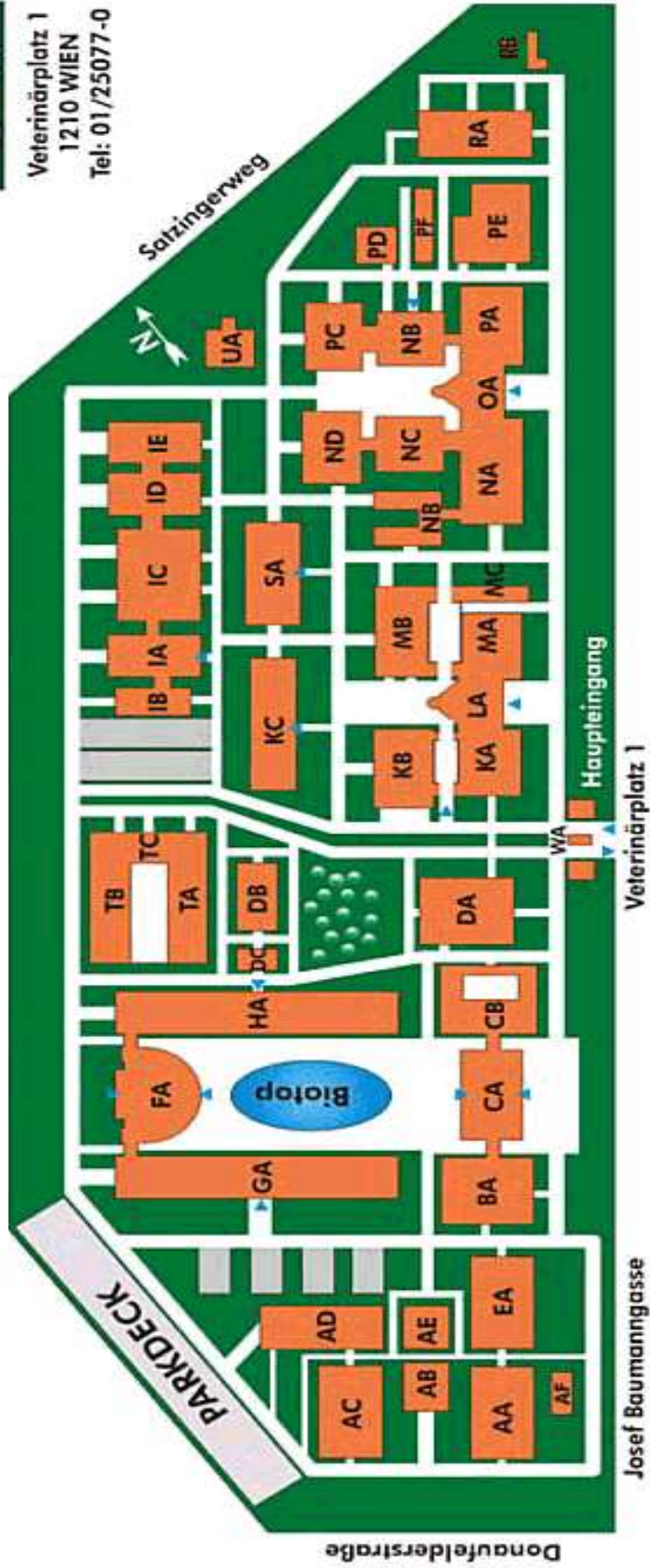
For detailed information see page 5 and 6.



# University of Veterinary Medicine Vienna



Veterinärplatz 1  
1210 WIEN  
Tel: 01/25077-0



AA:	Bacteriology, Mycology and Hygiene Parasitology Clinical Virology	ground floor/1 <sup>st</sup> floor 2 <sup>nd</sup> floor/3 <sup>rd</sup> floor 3 <sup>rd</sup> floor
AB:	Parasitology stable	
AC:	Pathology Virology (including Research Institute for Virology and Biomedicine)	ground floor/1 <sup>st</sup> floor 2 <sup>nd</sup> floor/3 <sup>rd</sup> floor
AD:	Pathology, Dissection halls Zoology	ground floor/1 <sup>st</sup> floor 1 <sup>st</sup> floor
AF:	Aviary	
AE:	Lecture Hall C	
BA:	Library	
CA:	Aula, Study affairs office, International relations office, Senates office Ceremony Hall, Conference rooms	ground floor 1 <sup>st</sup> floor:
CB:	Central services Rectorate, Central services	ground floor 1 <sup>st</sup> floor:
DA:	Coffee shop, Students union office Students refectory Central Computing Services (ZID)	ground floor 1 <sup>st</sup> floor 2 <sup>nd</sup> floor
DB:	Pharmacy	
EA:	Anatomy	
FA:	Lecture Hall A and B	
GA:	Nutrition Histology & Embryology, Lecture Hall D Milk Hygiene Meat Hygiene Botany, Animal Caretaker School	ground floor 1 <sup>st</sup> floor 2 <sup>nd</sup> floor 3 <sup>rd</sup> floor 4 <sup>th</sup> floor
HA:	Pathophysiology Med. Chemistry Audiovisual centre, Lecture Hall M Pharmacology, eCentre Biochemistry ÖZBT Aquatic Ecotoxicology, RI Pharmacology Physics Animal Husbandry & Welfare	ground floor 1 <sup>st</sup> floor 1 <sup>st</sup> floor 2 <sup>nd</sup> floor 2 <sup>nd</sup> floor 2 <sup>nd</sup> floor 3 <sup>rd</sup> floor 4 <sup>th</sup> floor 4 <sup>th</sup> floor
IA-IE:	Obstetrics, Gynaecology and Andrology, Lecture Hall F	
KA-KC:	Clinic for small animals and horses	
KA:	Clinical Immunology	2 <sup>nd</sup> floor
LA:	Lecture Hall G	
MA-MC:	Clinic for ruminant and swine	
NA-ND:	Surgery	
NA:	Animal Breeding and Genetics	2 <sup>nd</sup> floor/3 <sup>rd</sup> floor
OA:	Lecture Hall E	
PA-PF:	Orthopaedics	
RA, RB:	Poultry, Reptiles, Fishes	
SA:	Diagnostic Imaging	
TA-TC:	Garages & Maintenance, Printing office, Technical services	
UA:	Greenhouse Botany	
WA:	Main entrance building	

## INTRODUCTION

The following introductory paragraph is meant to explain and to define some characteristics of the University of Veterinary Medicine Vienna (hereinafter referred to as VUW). The VUW is the oldest institution of veterinary education in the German-speaking countries and the second-oldest of its kind worldwide. Founded in 1765 by Empress Maria Theresia, the VUW, now situated at the left side of the river Danube in Viennas' 21<sup>st</sup> district, looks back at a prosperous tradition as a Viennese school of veterinary medicine. This prolific way is consistently continued to date.

The latest drastic changes in the legal status of the VUW occurred in 2003/04 following the implementation of the University Act (UG 2002), which transformed the Austrian Universities into autonomous institutions with different decision-making structures to which financial means are allocated on the basis of target and performance agreements – measured by indicators – and whereby the former University Organisation Act 1993 (UOG 1993) and the University Studies Act 1997 (UniStG 97) were suspended. This also entailed changes in the internal budget management with mandatory use of SAP (Systems, Applications and Products in data processing). Organisational and study-related regulations of the UG 2002 became effective on 1<sup>st</sup> January 2004, the new curriculum, implemented on 1<sup>st</sup> October 2002, presently covers the first 4 academic years. The former curriculum of 1994, on which the latest EAEVE evaluation of the VUW in 1997 was based, will expire at the end of the academic year 2005/06. Students are entitled to taking exams to complete their studies under the regulations of the old curriculum by 2008 at the latest on the basis of transitory provisions. Whereas in the founding period of the University educational emphasis was originally put on curative activities on horses of military importance and on control of epidemics in farm animals, veterinary education nowadays offers a significantly broader spectrum of species and disciplines. The VUW aims at performing both, ethically and ecologically specified services in teaching and research and to identify the role of animals interrelated with man and the environment. In this context, man and his natural environment have moved into the focus of interest and thus, issues of food safety, animal husbandry and animal welfare, biomedicine and protection of the environment have become increasingly important. The fundamental curriculum reform of veterinary studies in 2002 has attempted to meet these changing demands, considering the recommendations on the occasion of the EAEVA visitation in 1997, by modularization of the curriculum in the field of specialised education, introduction of new compulsory subjects (epidemiology, clinical immunology, applied radiological and ultrasound anatomy, anaesthesia and intensive care medicine, pathophysiology, scientific reading) and by intensifying training of clinical skills. Apart from the general framework of the present curriculum, the new VUW campus, settled in 1996, provides good training opportunities for approximately 2000 diploma and doctoral students of veterinary medicine. Corresponding organizational changes, including re-organization of the clinics, centralized admission of patients and launch of a central diagnostic unit have been partly accomplished since. The results of a graduates' survey in 2004 constituted another important basis for curriculum reforms. The basis for organizational measures was an amendment to the organization law of Austrian Universities by the UG 2002. Following the implementation of the UG 2002, the fragmented institutional structure was reorganized into a department structure by fusion of closely related or affiliated disciplines, thus aiming at streamlining administrative structures. Another significant change was the transfer of ownership of the Teaching and Research Farm (TRF) to the VUW in July 2005 due to a modification of the Agricultural Amending Law in July 2005. The previous owners, the Federal Ministry of Agriculture and the Federal Ministry of Finances, had intended to sell the TRF to third-party proprietors; hence, necessary constructional adjustments were left undone in the past years. The changes of ownership urgently require rebuilding to enable both practice-oriented teaching and research projects by

means of a credit of € 2.2 million raised by the VUW. In addition, three veterinarians were employed at the TRF in 2004 and 2005, who, apart from livestock care, are equally involved in the VUW training programme; moreover, two vehicles suited for operating a mobile clinic were purchased.

In addition to the degree programme of veterinary medicine, a number of University courses, such as internships in small animal and equine medicine, bovine health management, and animal reproduction and biotechnology of animal production as well as University courses in "Animals as Therapy" and "Physiotherapy in Animals" complete the range of training and continuing education programmes in veterinary medicine offered by the VUW.

In this context the doctoral programme of veterinary medicine, aiming at introducing students to independent scientific research, is of vital significance. This increasingly important task will henceforth be assumed by the impending implementation of doctoral colleges followed by PhD programmes.

The recent implementation of two bachelor programmes, namely of biotechnology and biomedicine and of equine sciences has allowed for the diversification of present and future professional demands. This decision to extend the range of educational programmes at the VUW beyond the well-established area of veterinary medicine has been impressively affirmed by active demand for participation in these study programmes. New bachelor programmes in pharmacology and in "human-animal-bond" are projected.

The range of education and continuing education programmes offered by the VUW is subject to a continuous process of adaptation, thus ensuring up-to-date, high-quality education in future. The primary goal aims at continuing improvement of education standards, thus leading to increased international competitiveness of graduates. With regard to the internationalization process, the VUW has successfully accomplished an ECTS site visit in 2002. The VUW is also actively involved in measures of qualitative improvement of veterinary education in Europe. Research-based training was first and positively evaluated by the EAEVE in 1997. Within the survey "Veterinary education in comparison between countries – EU countries, non-EU countries and the United States of America (Strobel, doctoral thesis, 2002) the VUW was ranked in third position and hence best-placed HEI (Institution of Higher Education) in the German-speaking area. Veterinary graduates are thus ensured bright prospects for a professional career and further training, nationally and internationally – today and in future. To set the course effectively and in due time, the VUW organized a joint symposium with its European partner institutions in 2005 to define the position of veterinary education and to predict future trends.

Major improvements have also been achieved regarding electronic services. An online Hospital Information System (TIS) has been available for all Animal Clinics since 2001, which is by now also applied by the University of Veterinary Medicine Hannover and by the Faculty of Veterinary Medicine of the University of Utrecht. Moreover, each student admitted to the VUW has a personal email account and access to numerous services of the application platform "VUW++", including information on courses and contents, discussion forums and even registration for exams.

The primary task and goal of research at the VUW is to promote the development of veterinary sciences by aiming at holistic problem solutions in the area of animal health, control of zoonoses and quality assurance of food. In this regard, the interaction between man, animals and the environment are of equal importance as the preservation of biological diversity and animal welfare. Present-day research increasingly focuses on topics related to human medicine. Medical and biotechnological procedures are frequently applied to develop innovative therapeutic concepts (for example in cancer therapy).

One of the most significant measures in this context was to merge the recent research activities of the VUW into so-called "profile lines". These main research areas of the VUW

include, apart from topics of "innovative diagnostics" and "food safety", issues of "prevention of infectious diseases" as well.

Highly-qualified personnel apply technologies equivalent to the most up-to-date level in human medicine – including gene analysis, computer tomography and magnetic resonance imaging (MRI) or radiotherapy. The excellent infrastructure of the VUW not only supports research, teaching and economic co-operations in an ideal way but also predestines the VUW as a venue for international meetings and conferences in a scientific atmosphere.

The VUW is integrated into an international co-operation network, which, apart from other Universities in Austria and abroad, also includes a number of institutions, bodies of interest and companies. These connections ensure an ideal setting for joint use of resources to develop new approaches and strategies for the protection and continuous improvement of the quality of life of animals, humans and the environment.

Currently, significant problems are due to increased repair expenditures of the University's instrument equipment and lack of financial resources at the required volume. This high degree of wear out of the whole technical equipment results from the initial equipment of the new buildings in 1996 and 1997. Despite an expertise about funding requirements of approx. € 12 mio. to preserve the equipment standard, these demands have neither been considered nor recognized in the budget allocation to the University by the public authorities.

The budget requirements to ensure adequate veterinary education are altogether only insufficiently accounted for by the Federal Ministry for Education, Science and Culture. The refinancing costs for the new buildings of the VUW amount to approximately 50% of the budget allocation by the Federal Ministry, which signifies a *de facto* cutback of the disposable budget by half. Nonetheless, all budgeting measures by the Federal Ministry have always been based on the total budget as a flexible budget. Resulting budget restrictions thus affect the VUW in all respects.

It will be of crucial importance whether, following the sentence passed by the European High Court on 7 July 2005, admission of students will be permanently connected to the training capacities available at the VUW or if unrestricted free University access will become mandatory.

The building structure, which in some areas does not meet or impede the required needs in adequate form, constitutes another problematic issue.

Further improvements also seem necessary with regard to internal communication and the degree of identification of staff members with the University. This is partly reflected in lacking knowledge about the regulations of the current curriculum and resulting insufficient preparation in the implementation of the curriculum. An additional problem is due to the fact that the department structure has not been "activated" yet and old institutional structures are still adhered to.

A variety of measures of improvement have been taken in this context. These include the bi-weekly publication of an information brochure (VUW-Intern) for students and University staff as well as an annual "day of perspectives" of the VUW, to which both staff members and students are invited and which serves as a platform of dialogue between University staff about teaching, research, service and administrative subjects. The so-called "Happy Fridays", which are held on a regular basis, are another means of communication within the VUW. These are joint meetings of scientific and administrative personnel, each organized by a department and dedicated to the exchange of ideas in a pleasant atmosphere. Further significant activities are the establishment of a discussion forum for University members as a "platform future" and mentoring programmes for students and staff.

## Chapter 1 - OBJECTIVES

### 1. FACTUAL INFORMATION

Apart from the mission statement, the overall goals are specified in the development plan (see Annex 1, pp 1 - 44). This development plan is issued by the rectorate on the basis of a joint discussion process of all University members and students, thereafter presented to the University senate, the highest academic board of the VUW, for a statement and finally approved by the University Council. This development plan defines the strategic goals of the VUW in the field of teaching, research and scientific service for a period of several years, with the following orientation for teaching:

Following the tradition of the University of Veterinary Medicine Vienna, the aim is to be classified among the five top-ranked Veterinary Universities in Europe. To enhance the educational qualifications of new generations and to establish new standards, existing co-operations with other Universities within and outside Europe are to be expanded and new contacts are to be established. Synchronization of the curriculum design and of education standards with foreign Universities according to the Bologna Process enables a European-wide and global exchange of students and teaching staff. This intensified international orientation is to be integrated into all levels of teaching and research, thus leading to new synergies.

The new bachelor programmes, both implemented in 2004, constitute an initial bookmark towards the implementation of a European architecture of studies. Additional study facilities to complement the field of veterinary science are offered for the first time. Active demand for these new programmes impressively justifies this decision. The implementation of bachelor programmes in pharmacology and in human-animal-bond within the next few years are presently under discussion.

The possibilities for autonomous scientific research within a doctoral programme of veterinary medicine will be extended by the impending implementation of doctoral colleges and of PhD programmes. Imbedded into existing research areas at the VUW, three doctoral colleges are to be initially established in October 2006 (continued until 2017). The primary goal is to create high-quality centres of research for training of junior scientists and providing young candidates with the possibility for graduation at internationally recognized level. The programme is to be complemented by additional qualifications, e.g. project management, basics of business administration, transfer of technology, scientific English and communication skills. Special emphasis will be put on supporting grant holders. Clinical and scientific training are to be combined to optimize research processes. Interconnection of the doctoral colleges with already existing residency programmes at the VUW will be provided for within the framework of a research focus.

Additional prospective projects are postgraduate training for scientists engaged in animal experiments and an international master programme in equine sciences.

Improvement of student support and integration of an e-learning concept (Vetucation™) following the concept of "blended learning" will be of equal importance. This project aims to re-develop target groups (pupils, veterinarians), to enable a more flexible organization of teaching and to improve continuous vocational training of veterinarians, to enhance interaction and communication between students and teaching staff and to reduce the strain for animals used in training as a measure of animal protection, to relieve time burdens for teaching staff, thus creating increased support capacities for small group teaching required in the clinical sector. The target groups for Vetucation™ are, apart from students, teachers of higher general secondary schools to provide information to prospective students, pupils of higher general secondary schools and first-year students to improve their scientific

knowledge, working students, students with children and veterinary practitioners in advanced vocational training required to keep the right to practice (*ius practicandi*).

For the purpose of effective realization, these projects are integrated into the annual target and performance agreements with the departments by the rectorate, providing additional financial means for structural measures, establishing individual assistance measures, extending the former bonus system for teaching staff, creating a premium system for top performance in the field of teaching and encouraging possibilities for profile development. Integration of these measures into the annual target and performance agreements helps to ensure the periodic review of achieved objectives as well as update of the agreements.

Measures of quality assurance are an important step to ensure educational quality. Maximum quality in teaching, research and service - monitored and certified by acknowledged systems - will continue to be one of the main goals of the VUW. Only thus will the University be able to maintain its central position within and outside Europe. By setting up a mentoring system students will be supported and guided in pursuing a scientific career. An additional measure of quality increase is to limit the number of new students admitted to the VUW to ensure an optimum ratio of support of 1:5 to 1:7.5. In association with e-learning facilities and the projected professorial chair in teaching methodology inside the department of study affairs, the educational quality at the VUW is to be improved and fresh impetus should be given. The implementation of these measures is ensured by internal budget allocation, controlled by indicators (see chapter 3).

## 2. COMMENTS

A number of these measures were already initialized by the VUW some years ago, whereas others could only be realized following the implementation of the UG 2002 in 2004; hence, the degree of achieved objectives is variable. Joint identification and formulation of general objectives in the framework of perspective days as well as the internal budget allocation, controlled by indicators, have already been well-established. Research achievements on the whole could be significantly raised by the introduction of a so-called publication incentive. Reinforcement of the research profile has been supported by the profile lines and additional raise of internal funds.

These vigorous factors may however turn into deficiencies, especially if the constructive discussion process cannot be decisively completed within a reasonable period. Occasionally, democratic means are used disproportionately as a measure of delaying tactics.

Another concern is the still relatively long duration of studies and the high dropout rate. The main reason for these problems are due to federal laws, which provided unlimited University access up to 2005, almost no time restrictions regarding study periods and uniformly standardized low tuition fees.

## 3. SUGGESTIONS

The VUW proceeds on the assumption that the existing legal framework will allow for more efficient work as compared to the past. The present legitimation to self-determine the number of students within a given scope has only been provisionally granted to the University until 2007.

The definite regulations provided by the Austrian government regarding University access will be of crucial importance in this respect. With regard to the quality of study programmes offered at the VUW, it will be essential to be able to define admission quota according to the training capacity and to organize the admission procedure autonomously considering qualitative selection criteria.

## Chapter 2: ORGANISATION

### 1. FACTUAL INFORMATION

Name of the establishment: University of Veterinary Medicine Vienna

Address: Veterinärplatz 1, A-1210, Vienna, Austria

Phone: +43 (0)1 25077 1000

Fax: +43 (0)1 25077 1090 Website: <http://www.vu-wien.ac.at>

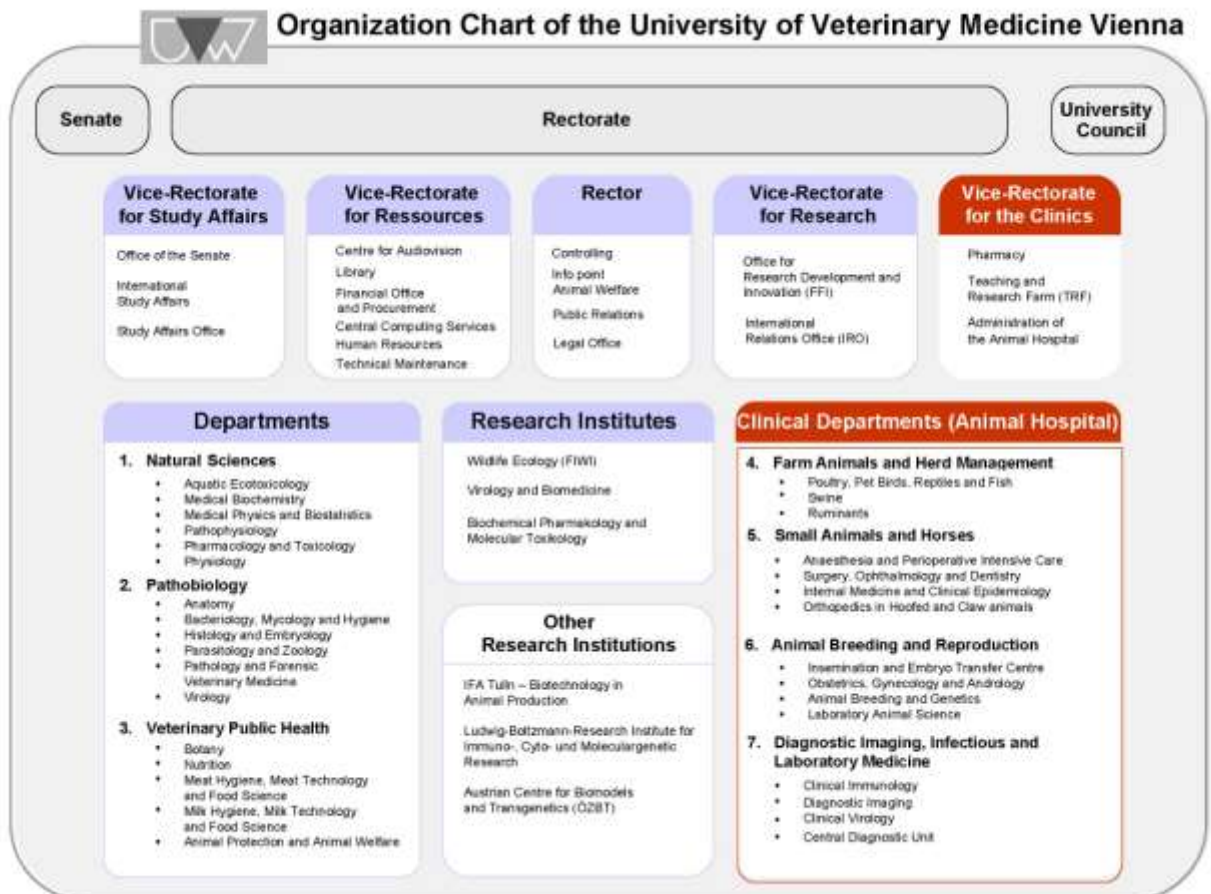
Rector (head) of the establishment: Wolf-Dietrich Freiherr von Fircks

The VUW is an autonomous State University comparable to a one-faculty establishment and is not part of any other institution. It is the only higher education institution in Austria that provides undergraduate and postgraduate veterinary education.

The VUW, just like all Austrian higher education institutions, is overseen by the Federal Ministry for Education, Science and Culture

Address: Minoritenplatz 5, A-1014 Vienna, Austria

Federal Minister for Education, Science and Culture: Mrs. Elisabeth Gehrler



The regulations of the University are specified in the statutes (Annex 2, pp 45 - 51) which are passed by the senate following a proposition by the rectorate. The University is headed by the Rector according to § 22 UG 2002, the tasks of the University Council are defined in § 21 UG 2002. The tasks of the senate are outlined in § 25 UG 2002.



### The University Administration

The University is administered by the rectorate. This governing body consists of the Rector and four vice-rectors, who, according to the bye-laws, are assigned specific, autonomous fields of activity.

Rector:	Wolf-Dietrich Freiherr von Fircks
Vice-rector for research:	Univ. Prof. Dr. Peter Swetly
Vice-rector for resources:	A. Univ. Prof. Dr. Erich Möstl
Vice-rector for study affairs:	A. Univ. Prof. Dr. Wolfgang Künzel
Vice-rector for the clinics:	O. Univ. Prof. em. Dr. Werner Klaus Waldhäusl

The Rector and the vice-rectors are elected by the University Council; the Rector from a shortlist of three by the senate, the vice-rectors following a proposal by the Rector.

The rectorate heads the University and acts as external representative. It is responsible for all tasks which are not assigned to any other organ according to the UG 2002. Its duties include in particular:

1. Elaboration of a draft version of the statute for presentation to the senate
2. Elaboration of a University development plan for presentation to the senate and to the University Council
3. Elaboration of an University organization plan for presentation to the senate and to the University Council
4. Elaboration of a draft version of the performance agreement for presentation to the University Council
5. Appointment of the heads of the organization units
6. Contracting of target agreements with the heads of the organization units
7. Assignment of University personnel (§ 94 para 1 Z 2 to 6) to individual organization units
8. Admission of students
9. Levying of tuition fees at the statutory rate
10. Disposing of evaluations and publication of evaluation results
11. Conferring of teaching qualifications (*venia docendi*)
12. Statements on the curricula
13. Establishment of an accounting and report system
14. Allocation of the budget
15. Elaboration of the annual performance report, of the balance of accounts and of the intellectual capital reporting survey (ICRS)
16. Enactment of guidelines to delegate authority to University employees according to § 28 para 1

The vice-rector for study affairs (teaching, continuous education and evaluation) is independently responsible for the following tasks:

1. Admission of students
2. Levying of tuition fees at the statutory rate
3. Disposing of evaluations and publication of evaluation results
4. Establishment of a self-study centre
5. Within the statutes: fulfilment of study-related regulations at first instance according to the University Act 2002
6. Support of the senate in establishing bachelor, master, diploma and doctoral programmes
7. Support of the senate in establishing activities of postgraduate continuing education, in particular doctoral and PhD programmes and University courses

8. Promotion of integration of University alumni and alumnae

The vice-rector for the clinics (Animal Hospital and clinical services) is independently responsible for the following tasks:

1. Spokesman of the Animal Hospital of the University of Veterinary Medicine Vienna
2. Appointee for epidemics of the entire University
3. All clinical affairs/matters of the Animal Hospital which are not explicitly assigned to any other organ
4. Draft of the establishment regulations of the Animal Hospital
5. Coordination of services within and for the Animal Hospital
6. Coordination of courses of postgraduate education in the clinical area, especially internship and residency programmes
7. Matters of the establishment pharmacy, the central diagnostic unit, the Teaching and Research Farm and of the emergency ambulance

The vice-rector for research (research and international relations) is independently responsible for the following tasks:

1. Elaboration of proposals for creating areas of main research
2. Coordination between areas of main research
3. Conclusion of national and international research co-operations
4. Habilitation procedures and implementation and quality assurance of the PhD programme
5. Completion of target agreements regarding publications
6. Consulting and support in raising of third-party funds
7. Research evaluation of the University
8. Information transfer to the scientific advisory board of the University
9. Awarding of research grants, research awards and comparable benefits
10. Contact person for good scientific practice
11. Coordination of sabbaticals and exchange programmes for junior scientists

The vice-rector for resources (personnel and administration) is independently responsible for the following tasks:

1. Establishment of an accounting and reporting system
2. Budget allocation and operative controlling
3. Elaboration of proposals for the financial business management by the rectorate
4. Elaboration of the annual performance report, the balance of accounts and of the intellectual capital reporting survey
5. Personnel development planning and general framework for contracts of employment and contracts for services
6. Activities of continuing education, especially within human resources development
7. Coordinator for internal and external benchmarking
8. Optimization of use and utilization of resources in teaching and research
9. Supervision of the following service facilities: Computer Centre, University Library and Centre for Audiovision
10. Coordinator for new media, internal information services, homepage and intranet

### **The University Council**

The University Council has controlling and management tasks and should equally assume supervising functions. Based on propositions by the Rector and in close co-operation with the Senate, the council has to determine the University's future directions and strategies required to achieve this goal.

The University Council is composed of five members, two of which (S) are elected by the VUW senate and two (G) appointed by the central government. The fifth member (UC) is elected by the other four members. The chairperson is elected by members of the University Council.

Members: Dr. Barbara Borek (S, chairperson, former head of a department at the Federal Ministry of Education, Science and Culture)

Dr. Werner Frantsits (S)  
 Univ. Prof. Dr. Udo Losert (G)  
 Dr. Ingela Bruner (G)  
 Univ. Prof. Dr. Marian Horzinek (UC)

The University Council has the following tasks:

1. Approval of the development plan, the organization plan and the draft of the University performance agreement as well as the bye-laws of the rectorate
2. Statement on the public tender of the rector's position by the senate
3. Election of the rector from the shortlist of three proposed by the senate and election of vice-rectors based on a proposition by the rector and following a statement by the senate
4. Elaborating the employment contract and of the target agreement with the Rector
5. Recall of the rector or of the vice-rectors
6. Nomination of a female and male member into the board of arbitration
7. Statement on the curricula and on the study programmes outside the performance agreement
8. Permission to establish companies and foundations
9. Approval of the regulations for the management of finances and approval of the balance of accounts, of the performance report by the rectorate and of the intellectual capital reporting survey and conveyance to the federal minister
10. Appointment of an auditor to validate the University's balance of accounts
11. Permission to incur liabilities exceeding the University's current business activities and authorization of the rectorate to assume these liabilities up to a certain amount without prior approval by the University Council
12. Obligation to report to the federal minister in cases of heavy legal violation by University organs and in case of imminent economic damage
13. Approval of guidelines by the rectorate to delegate authority to University employees according to § 28 para 1

### **The Senate**

The senate is the University organ which focuses on democratic co-determination.

The main decision-making authority relates to matters of studying and examinations, in particular issuing and amendment of curricula, where close cooperation by the students is of special importance. The senate of the VUW is composed of 24 members, among them 13 University professors, four representatives of the assistant and associate professors, six student representatives and one delegate of the non-academic staff. The chairperson is elected by the members of the Senate.

Chairperson: O. Univ. Prof. Dr. Mathias Müller

The senate has the following tasks:

1. Issuing and amendment of the statute
2. Approval of the development plan issued by the rectorate within a period of two months in case the senate does not consent in due time, the development plan is none withstanding to be passed on to the University Council

3. Approval of the draft version of the organization plan passed by the rectorate within a period of two months in case the senate does not consent in due time, the organization plan is none withstanding to be passed on to the University Council
4. Modification of size of the University Council and election of members of the University Council (§ 21 para 6 Z 1 and para 7)
5. Tender of the position of rector and issuing of a shortlist of three for election of the rector to be passed on to the University Council
6. Statement on the proposals by the rector concerning the positions of vice-rector (number, volume of employment and proposed candidates)
7. Assistance in case of recall of members of the University Council, of the rector and of the vice-rectors
8. Assistance in habilitation procedures
9. Assistance in professorial appointment procedures
10. Enactment of curricula for degree programmes and University courses (§§ 56 and 57)
11. Definition of academic degrees and denominations for graduates of University courses
12. Decisions at second instance in study affairs
13. Definition of categories for special-purpose deduction of tuition fees by the students
14. Appointment of collegial board members with or without decision authority (para 7 and 8)
15. Enactment of guidelines for activities of the collegial board
16. Approval for effecting decisions by the collegial board with decision authority
17. Statement to the rectorate prior to assignment of personnel to individual organization units by the rectorate
18. Establishment of a working group on equal opportunities
19. Appointment of both a female and male member to the arbitration board
20. Delegation of a member to the arbitration committee

For preparing necessary study-specific decisions for already existing study programmes, the Senate relies on so-called curricular committees. For study programmes which have not yet been approved, a working group is used for preparatory planning.

#### **Curricular committee for the diploma and doctoral programmes of veterinary medicine**

The chairperson is elected by the members of the curricular committee.

Univ. Prof. Dr. Rene van den Hoven (chairperson)

Univ. Prof. Dr. Peter Schmidt (vice-chairperson)

Co-opted: Vice-Rector A. Univ. Prof. Dr. Wolfgang Künzel, Mag<sup>a</sup>. Nicole Kaltenegger

#### **Curricular committee for the study programmes biomedicine and biotechnology / equine science**

The chairperson is elected by the members of the curricular committee.

O. Univ. Prof. Dr. Jörg Aurich (chairperson)

A. Univ. Prof. Dr. Dieter Klein (vice-chairperson)

Co-opted: Vice-Rector A. Univ. Prof. Dr. Wolfgang Künzel, Mag<sup>a</sup>. Nicole Kaltenegger

There are several standing and ad hoc committees and councils which are all advisory bodies of the Rectorate or the Senate.

#### **Working group for the study programme “human-animal-bond”**

O. Univ. Prof. i.R. Dr. Dr.h.c. Elmar Bamberg (chairperson)

The following standing or ad hoc committees and councils are advisory bodies of the Rectorate or the Senate.

### **Ethics and Animal Welfare Committee**

The Ethics and Animal Welfare Committee holds a meeting chaired by the vice-rector for the clinics once a month. Apart from assessment of applications and reports on animal experiments, the committee also deals with enactment of guidelines for good scientific practice, determination of workflow and basic principles of animal experiments and animal welfare law.

Chairperson: Vice-rector O. Univ. Prof. em. Dr. Werner Klaus Waldhäusl

Tasks and Rights:

1. Contact point for all issues concerning welfare of animal patients and animals used for training and experiments
2. Assistance in cases of doubt regarding the necessity of use of animals for training and experiments
3. Consulting in the planning of experiments and search for adequate alternative methods to animals testing and on general matters of animal experiments
4. Contact point for all issues concerning stress of the animals, acceptability and severity of applied procedures
5. Internal authority which, inter alia, clarifies in advance whether an application for permission or merely a report on the animal experiment is required
6. Connecting link to the responsible persons at the federal ministry
7. Conveyance of recommendations to the rectorate
8. Consulting in handling scientific trials or additional sampling for therapeutic use
9. Assistance in ethical organization of teaching courses with living animals
10. Balancing the relation between scientific outputs derived from the trial against the pains, sufferings and harms caused to the animals
11. Analysis of ministerial decrees and discussions with the ministerial committee

### **Control Commission on Tuition Fees**

The function of the control commission on tuition fees is to verify the correct usage of tuition fees for specific purposes. The chairperson is elected by the members of the control commission on tuition fees.

Mag<sup>a</sup>. Nicole Kaltenegger (chairperson)

A. Univ. Prof. Dr. Florian Buchner (vice-chairperson)

### **Commission on Equal Opportunities**

The function of the task force is to cope with discriminations by University organs due to gender and to provide advice and support to University staff members and organs in matters of equal treatment of females and males and of affirmative action programmes. The chairperson is elected by the members of the working group.

Chairperson: Ass. Prof. Dr. Theresia Licka

### **Commission on Investigating Scientific Misconduct**

In case of suspected scientific misbehaviour, the VUW adopts the recommendations by the German Rectors' Conference (HRK) "Dealing with scientific misconduct in Universities". In case of well-founded suspicion of scientific misbehaviour the appointed commission has to investigate the matter and examine the facts. On confirmed suspicion of scientific misconduct, the rector has to be notified to take adequate actions. The chairperson is elected by the members of the commission.

Chairperson: Dr. Herbert Pimmer

High Councillor of the Supreme Court of Justice  
 Phone: 01/521523695  
 Ombudsperson: Univ. Prof. Dr. Anja Joachim  
 Deputy: Univ. Prof. Dr. Peter Schmidt

### **The Arbitration Board**

#### Tasks

1. Mediation in disputes between University members
2. Decision about complaints lodged by the working group for equal opportunities in cases of discrimination due to gender following a decision by a University organ

The chairperson is elected by the members of the arbitration board.

Chairperson: Dr. Herbert Pimmer  
 High Councillor of the Supreme Court of Justice  
 Phone: 01/521523695

### **Scientific Advisory Board**

For consulting in the development of scientific strategies and for setting research priorities the VUW is assisted by an internationally renowned scientific advisory board. The following board members have been selected for this position by the rector:

Univ. Prof. Dr. Marian Horzinek, Utrecht (chairperson)  
 Univ. Prof. Dr. Volker Moennig, Hannover  
 Univ. Prof. Dr. Gerhard Breves, Hannover  
 Univ. Prof. Dr. Hans Lutz, Zürich  
 Univ. Prof. Dr. Bernd Hoffmann, Gießen  
 Univ. Prof. Dr. Reinhold Carle, Stuttgart-Hohenheim

The veterinary profession is involved in the development of the VUW by regular discussions with the University administration.

In the course of the curricular reform, a permanent representative of the veterinary profession was a member of the former curricular committee. Appointment of external lecturers and instructors is subject to approval by representatives of the veterinary profession. In addition, there is ongoing information exchange, underlined by the joint publication of the official professional journal (Vet Journal) and of the University periodical (UniVetWien Report).

The general public is informed about the activities at the University on the occasion of several events. So-called "Science Evenings" are organized annually to furnish information about the activities and developments at the University by means of subject-specific evening lectures during a full week and to keep visitors informed about developments of medical relevance. Moreover, the University annually participates in the so-called "science days", which are held at different locations all over Austria and likewise aim to inform the general public about trends and developments at Austrian Universities.

Events which are each bi-annually held at the University campus (open house) and at the TRF in Berndorf (Country festival) enjoy special popularity.

### **Structure of the University of Veterinary Medicine Vienna**

The areas of teaching and research at the VUW are structured into seven subject-specific departments (of which four clinical departments jointly make up the Animal Hospital) and three research institutes:

### **The Departments:**

1. Department for Natural Science
2. Department for Pathobiology
3. Department for Veterinary Public Health
4. Department for Farm Animals and Herd Management
5. Clinical Department for Small Animals and Horses
6. Clinical Department for Animal Breeding and Reproduction
7. Clinical Department for Diagnostic Imaging, Infectious and Laboratory Medicine

### **The Research Institutes:**

Research Institute of Wildlife Ecology  
 Research Institute of Virology and Biomedicine  
 Research Institute of Biochemical Pharmacology and Molecular Toxicology

The department spokespersons and their deputies are appointed by the rectorate for a period of one year following a proposal of appointed professors of the respective departments. Re-appointments are possible without limitation; however, a rotation of this position in a perennial cycle is aimed at. For mutual information and workflow control regular meetings (usually once a month) are held between the rectorate and the department spokespersons.

#### **1. Department for Natural Sciences**

Spokesman: Univ. Prof. Dipl.-Ing. Dr. Gerhard Windischbauer  
 Phone: +43(0)1/25077-4300  
 Fax: +43(0)1/25077-4390  
 Deputy: Univ. Prof. Dipl.-Ing. Dr. Manfred Gemeiner  
 Phone: +43(0)1/25077-4200  
 Fax: +43(0)1/25077-4290

Subjects represented by the Department:

- a.) Aquatic Ecotoxicology
- b.) Medical Biochemistry
- c.) Medical Biometry and Epidemiology
- d.) Medical Physics
- e.) Pathophysiology
- f.) Pharmacology and Toxicology
- g.) Physiology
- h.) Science Theory

#### **2. Department for Pathobiology**

Spokeswoman: Univ. Prof. Dr. Anja Joachim  
 Phone: +43(0)1/25077-2200  
 Fax: +43(0)1/25077-2290  
 Deputy: O. Univ. Prof. Dr. Walter Günzburg  
 Phone: +43(0)1/25077-2300  
 Fax: +43(0)1/25077-2390

Subjects represented by the Department:

- a.) Anatomy
- b.) Bacteriology, Mycology and Hygiene
- c.) Propaedeutic Imaging

- d.) Histology and Embryology
- e.) Parasitology
- f.) Pathology and Forensic Veterinary Medicine
- g.) Virology
- h.) Zoology

### **3. Department for Veterinary Public Health**

Spokesman: O. Univ. Prof. Dr. Josef Troxler

Phone: +43(0)1/25077-4900

Fax: +43(0)1/25077-4990

Deputy: A. Univ. Prof. Dr. Karin Zitterl-Eglseer

Phone: +43(0)1/25077-3105

Fax: +43(0)1/25077-3190

Subjects represented by the Department:

- a.) Animal nutrition
- b.) Animal Husbandry and Animal Welfare
- c.) Botany and Pharmacognosy
- d.) Domestic Animal Science
- e.) Food sciences and public health services

### **4. Department for Farm Animals and Herd Management**

Spokesman: Univ. Prof. Dr. Michael Hess

Phone: +43(0)1/25077-5150

Fax: +43(0)1/25077-5192

Deputy: Univ. Prof. Dr. Walter Baumgartner

Phone: +43(0)1/25077-5200

Fax: +43(0)1/25077-5290

Subjects represented by the Department:

- a.) Herd Management of all Farm Animals
- b.) Internal Medicine, Clinical Epidemiology and Large Animal Orthopaedics
- c.) Poultry, Reptiles, Fish and Bees

### **5. Clinical Department for Small Animals and Horses**

Spokesman: O. Univ. Prof. Dr. Christian Stanek

Phone: +43(0)1/25077-5500

Fax: +43(0)1/25077-Sekretariat: 5590

Deputy: O. Univ. Prof. Dr. Johann Thalhammer

Phone: +43(0)1/25077-5100

Fax: +43(0)1/25077-5190

Subjects represented by the Department:

- a.) Anaesthesia and Perioperative Intensive Care
- b.) Surgery and Ophthalmology
- c.) Internal Medicine and Clinical Epidemiology of Equids and Small Animals
- d.) Orthopaedics of Ungulates
- e.) all species not assigned to the Clinical Department of Farm Animals and Herd Management

### **6. Clinical Department for Animal Breeding and Reproduction**

Spokesman: O. Univ. Prof. Dr. Jörg Aurich

Phone: +43(0)1/25077-5400, 6015

Fax: +43(0)1/25077-5490



Deputy: O. Univ. Prof. Dr. Mathias Müller

Phone: +43(0)1/25077-5620

Fax: +43(0)1/25077-5690, 5693

Subjects represented by the Department:

- a.) Animal Breeding and Genetics
- b.) Biotechnology and Molecular Genetics
- c.) Experimental Animal Science
- d.) Laboratory Animal Science
- e.) Obstetrics, Gynaecology and Andrology

### **7. Clinical Department for Diagnostic Imaging, Infectious and Laboratory Medicine**

Spokeswoman: A. Univ. Prof. Dr. Karin Möstl

Phone: +43(0)1/25077-2702

Fax: +43(0)1/25077-2790

Deputy: Univ. Prof. Dr. Armin Saalmüller

Phone: +43(0)1/25077-2750

Fax: +43(0)1/25077-2791

Subjects represented by the Department:

- a.) Diagnostic Imaging
- b.) Clinical Immunology
- c.) Clinical Laboratory Medicine
- d.) Clinical Virology

### **Research Institute of Wildlife Ecology**

Head: O. Univ. Prof. Dr. Walter Arnold

Address: Savoyenstraße 1, A-1160 Wien

Phone: +43/(0)1/4890915-0

Fax: +43/(0)1/4890915-333

Homepage: <http://www.vu-wien.ac.at/i128/fiwi.htm>

### **Research Institute of Biochemical Pharmacology and Molecular Toxicology**

Head: O. Univ. Prof. DDr. Hans Nohl

Phone: +43(0)1/25077-4401

Fax: +43(0)1/25077-4491

### **Research Institute of Virology und Biomedicine**

Head: O. Univ. Prof. Dr. Walter Günzburg

Phone: +43/(0)1/25077-2300

Fax: +43/(0)1/25077-2390

### **Further research institutes are:**

#### **Research Institute of Biotechnology in Animal Production at the Department for Agrobiotechnology (IFA-Tulln)**

Head: O. Univ. Prof. Dr. Matthias Müller

#### **Austrian Research Centre for Biomodels and Transgenetics (ÖZBT)**

Head: Univ. Prof. Dr. Thomas Rülcke

#### **Ludwig Boltzmann Institute for Immuno-, Cyto- und Molekulargenetische Research**

Head: O. Univ. Prof. Dr. Dr.h.c. Gottfried Brem

## **2. COMMENTS**

Further improvements, as already mentioned in the introductory chapter, seem particularly necessary regarding internal communication within and also between organization units and equally with regard to the degree of identification of staff members with the University which is occasionally lacking. This is partly reflected in imperfect knowledge about the regulations of the new curriculum and insufficient preparation in the implementation of the curriculum. An additional problem is due to the fact that the department structure has not been fully realized yet and old institutional structures are still adhered to.

## **3. SUGGESTIONS**

In accordance with modern management strategies the organization units ought to be prepared for prompter planning, decision-making and implementation of strategic decisions. Separation of administrative tasks from subject requirements – in adequate form for each unit – might lead to streamlining of decision-making processes and to higher efficiency of target control in both areas.

An extension and increase in the range of postgraduate and continuing education activities in the fields of communication, teamwork and management is targeted as a measure of improvement.

## Chapter 3 FINANCES

### 1. FACTUAL INFORMATION

Table 3.1.1: Annual expenditure of the establishment

Calendar year 2004

	<b>Euro</b>
<b>a. Personnel</b>	
a.1 teaching staff	11.505.816.-
a.2 administrative staff	10.088.818.-
a.3 research staff	12.658.377.-
Total for a	34.253.011.-
<b>b. Operating costs</b>	
b.1 utilities	6.890.884.-
b.2 expenditure relating specifically to teaching	16.850.255.-
b.3       "       "       "       " research	16.648.257.-
b.4 general operations (excluding the above)	6.993.069.-
Total for b	47.382.466.-
<b>c. Equipment</b>	
c.1 teaching	1.260.492.-
c.2 research	2.385.623.-
c.3 general (or common) equipment	1.031.088.-
Total for c	4.677.203.-
<b>d. Maintenance of buildings</b>	315.175.-
<b>e. Total expenditure</b>	86.627.855.-

Table 3.1.2: Cost of veterinary training

	<b>Euro</b>
1. Annual direct cost of training per student	16.896.-
2. Direct cost of training for a diploma	126.719.-

### 3.2: REVENUES

Table 3.2.1: Annual revenues of the establishment

Calendar year 2004

	<b>Euro</b>
a. revenue from the government or from public authorities	74.855.784.-
b. revenue from private bodies	258.168.-
c. revenue from research	522.345.-
d. revenue earned and retained by the establishment	
d.1. tuition fees from students	1.473.650.-
d.2. revenue from continuing education	412.823.-
d.3. revenue from clinical activities	4.570.622.-
d.4. revenue from diagnostic activities	1.875.013.-
e. revenue from other sources	<u>4.816.923.-</u>
f. Total revenue from all sources	<b>88.785.329.-</b>

Specification of e.):

supports, leasing, etc.	2.635.900.-
revenues TRF	291.044.-
deposits	1.529.571.-
neutral revenues	1.600.-
financial revenues (interest)	<u>358.808.-</u>
	<b>4.816.924.-</b>

#### Overall revenues of the University of Veterinary Medicine Vienna

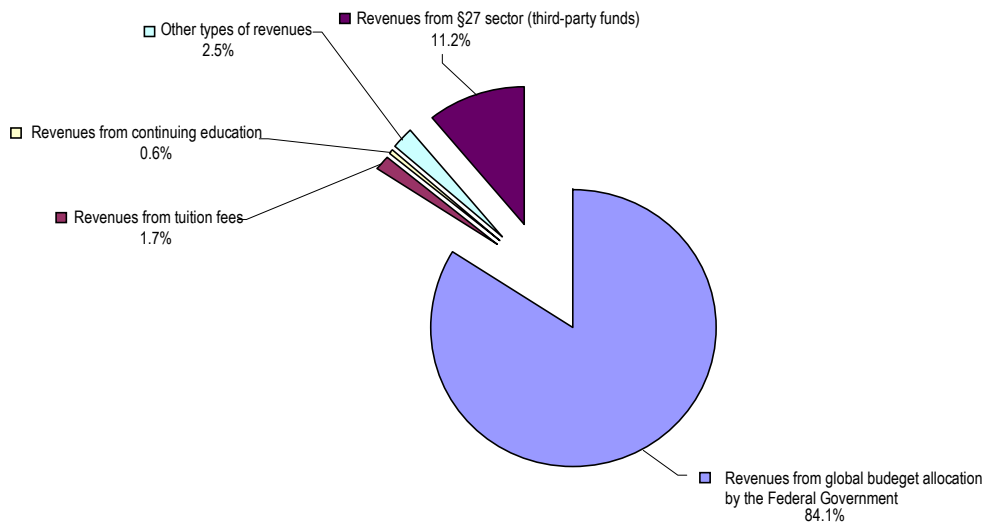


Table 3.2.2: Changes in public funding

Give the history of revenue from the state or public authorities (item a. from Table III.2.1) for the previous 5 years (in Euros).

Year	2004	2003	2002	2001	2000
Revenue	74.855.784.-	72.538.000.-	72.605178.-	71.245.324.-	70.355.518.-

The Universities are to be financed by the Federal Government with regard to the financial capacities of the government, the demands towards the Universities and the duties to be fulfilled by the Universities. The Federal Minister has to predetermine by the end of the second year of each performance agreement period (3 years), in accordance with the Federal Ministry of Finance, the total amount available for financing the Universities during the following performance agreement period and to reach mutual agreement according to § 45 of the Federal Budget Act, Federal Law Gazette No. 213/1986.

The total amount available is subdivided into partial amounts for (a) the basic budgets and (b) the formula-based budgets.

The tranche of the formula-based budgets amounts to 20% of the total amount available. The individual shares for each University are calculated on the basis of quality- and quantity-related indicators referring to the areas of teaching, research or development and access to the arts and to social objectives.

Each University receives a global budget, which is pre-calculated for a period of three years and composed of the respective basic and formula-based budgets.

The Universities are entitled to autonomous disposal of the global budget in line with their tasks and performance agreements. Revenue from third-party funding and returns on assessments has to be accounted for separately and remain at the disposal of the Universities without cut-back of funding allocated by the government.

Allocation of the financial means is by aliquot parts on a monthly basis and may be variable according to the University's demands within the global budget available.

A potential cut-back of a University's global budget at the utmost amounts to 2% in the first year of the triennial period, 4% (second year) and 6% (third year), respectively, of one third of the global budget determined for the past triennial period.

#### Performance agreement

The performance agreement is regulated by public law and is to be contracted between the individual University and the Federal Government within the legal framework for a period of three years.

The performance agreement contains in particular:

1. The services to be performed by the University which have to be defined according to the targets, main principles and tasks of the University in the following areas:

a) Strategic goals, profile development, University and human resources development:

The long-term objectives and the targets to be achieved within the performance agreement period are to be determined. The University has to specify its particular strengths and priorities and the resulting use of resources required for achieving these objectives. Information about assistance measures and incentives to obtain these goals in human resource development and the contributions required from University members are to be provided.

b) Research:

The University has to specify the research projects and research programmes, either in process of planning or continued.

c) Studies and Continuing Education:

The data on studies and continuing education activities are to be documented by relevant statistics about the quantitative development in these areas and by the results of the course evaluation by fields of studies. Based on this information the projects in the field of studies and continuing education and for training of highly qualified doctoral and postgraduate students are to be specified and potential changes in the organization of courses and studying to be determined to comply with the desired qualification profile of students and researchers.

d) Social objectives:

The University has to formulate its contributions to social development. This includes, among others, measures to increase the percentage of women in leading positions at the University, special offers for working students, expansion of socially relevant areas in art, culture and research as well as knowledge and technology transfer.

e) Expansion of internationalization and mobility:

The main activities and initiatives in this area focus on perennial international co-operations with Universities, other research institutions and organizations from the field of art and culture, on joint study and exchange programmes for students and for scientific and artistic staff and on an increase in the percentage of international students and postgraduates.

f) Inter-university co-operations:

The University has to specify its activities regarding joint use of organization units and services with other Universities. This includes furnishing information about the respective areas and on the scope and impact of co-operations with other Austrian Universities.

2. The performance commitment of the Federal Government:

Allocation of the basic budget by considering the criteria for basic funding

3. Contents, scope and range of objectives and date of achieving the targets

4. Distribution of the allocated basic budget to the budget year

5. Measures required in case of non-fulfilment of the performance agreement

6. Reporting and accounting

The performance agreement may be amended by mutual agreement in case of profound rearrangements of the underlying conditions. If mutual consent cannot be achieved, an appeal to the arbitration committee may be lodged. In case of serious changes in the underlying framework, the arbitration committee has to enact a modified performance agreement. Issuing of a performance agreement by the arbitration committee is equally applicable in case the performance agreement cannot be accomplished in due time. The performance agreement may however be issued by consensus at a later date.

The basic budget is determined as basic financing on the basis of the performance agreement. The following categories are the basis for negotiation and are relevant for calculation of the basic budget:

a) Budgetary requirements

b) Demand

c) Performance

d) Social objectives

The University has to submit an annual performance report based on the performance agreement to the Federal Ministry by 30 April of each year. Following the second budget year the performance report has to contain a prognosis of expected performance results and the University's financial situation in the third year.

Moreover, the University has to submit an intellectual capital reporting survey on the past calendar year to the Federal Ministry by 30 April of each year. The following categories at least have to be specifically outlined:

1. Scope, social objectives and self-defined targets and strategies

2. Intellectual property, differentiated into human, structural and relationship capital

3. The performance processes as defined in the performance agreement including their output and outcome

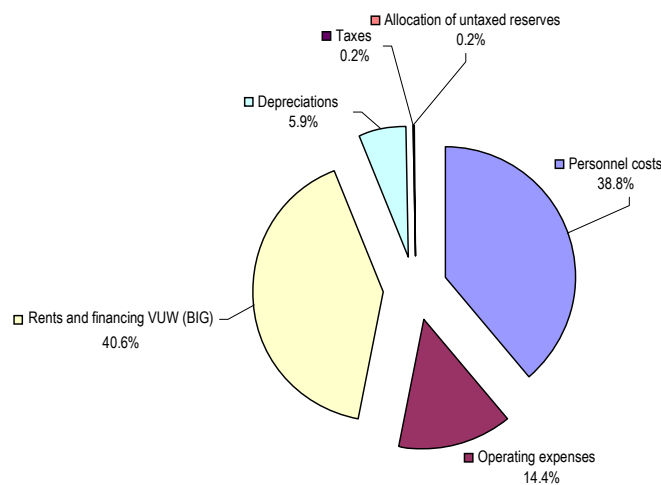
During the third year of the performance period the University has to submit a draft version of the following performance agreement to the Federal Ministry by 30 April at the latest on which the Federal Minister has to furnish a written comment by 31 August. Negotiations on the performance agreement are to be completed by 31 December at the latest.

The allocation of the financial means provided by the government is done by the rectorate. This budget is allocated to the University as a lump sum with only some funding for special purposes (Wildlife Ecology, special programmes of the Federal Ministry for Education, Science and Culture.)

Revenues from research grants or from services remain at the disposal of the departments (except 5 % for maintenance).

The departments and research institutes receive a certain amount of money for salaries and for basic funding of teaching and research. (The rent for the buildings is paid by the University.)

### Overall expenditures of the University of Veterinary Medicine Vienna



Additional means are allocated to the departments through the so-called "profile lines". This project supports the transparency of research activities at the University and provides extra funds for establishing external grant proposals or external grants. This money is distributed by an internal board (and is supervised by an external scientific advisory board).

Part of the funding of the departments comes from publications. The publications are ranked (guidelines were elaborated by the senate) and the ranking is translated into "credits". Each credit is worth a certain amount of Euros (depending on the total number of credits, which all researchers have achieved).

Another possibility is to establish agreements with the University for Special Projects, which are paid according to the results.

Additional means are allocated to the clinics by the vice-rector for study affairs for teaching purposes (mainly for farm animal clinics).

#### Capital expenditure

Construction: the main activities focus on the University's Teaching and Research Farm. This decision was caused by an amendment of the Austrian law which requires fulfilment of pre-defined standards in keeping farm animals.

Major items of equipment: Expensive equipment is mainly invested into technology centres (the financial means are provided by the government as extra funding or through the "profile lines").

Decisions about proposals to the ministry are taken by the vice-rector for research (external funding) or by the board of the "profile lines" (internal funding). Other equipment is a matter of the departments, which also receive their funding as a lump sum.

Students with Austrian nationality or with equal rights for access to the veterinary profession by contracts under international law (e.g. EU and EEA citizens) have to pay tuition fees of 363.36 Euro per semester.

Students, who are non-Austrian citizens and without status equivalency to Austrians by contracts under international law have to pay a tuition fee of 726.72 Euro per semester. The tuition fee increases by 10% in case of belated payment during the extension period (i.e. following the general admission period).

Students admitted to several study programmes, whether at the same institution or at different Austrian Universities, have to pay the tuition fee only once.

The tuition fees are regulated by law and are to be paid in advance for each semester.

Tuition fees are altogether at the disposal of each individual University, though dedicated to special purposes within individual categories. These categories are determined by the senate in co-operation with the students' representatives with at least one category to be specified by the students. By paying the tuition fees students are entitled to vote (percentage of votes in 2004 was 13.1 %, in 2005 15.5 %) among the categories for special-purpose dedication of the fees as defined by the senate. The following categories were determined by the senate for the budget year 2005:

- 1) Improvement of elective subjects (vote: 36.9%)
- 2) Integration of external lecturers and excursions (vote: 38.7%)
- 3) Remuneration of student assistants (vote: 12.2%)
- 4) New media in teaching, University library, IT-services (vote: 12.2%)

The following three categories have been defined for the budget year 2006:

- 1) Improvement of elective subjects and integration of external lecturers and excursions (vote: 60.5%)
- 2) Remuneration of student assistants (vote: 25.8%)
- 3) e-learning (vote: 13.7%)

In addition to the tuition fee, students have to pay a student fee of currently 15.36 Euro per semester. This fee, which also includes student liability insurance, is directly transferred to the Austrian National Union of Students. The amount due is determined annually by the Federal Representation of Students within the legal framework.

## **2. COMMENTS**

The priority of additional funding depends on the development plan. The autonomy and flexibility of the University in financial matters is ensured concerning the disposable part of the budget (approx. 50%). The other part is fixed within the existing general framework (ownership structures, employment contracts or the like), e.g. for rents.

The total returns from external services (animal hospital plus diagnostics) are € 6.4 mio per year. These revenues are at the disposal of the units collecting the money with the exception of 15 %. From these 15 % two third are returned to the unit for investments or for supporting young researchers, one third is for maintenance and reimbursement of costs.

Meanwhile the decennial use of the buildings with only minor reconstruction activities – which is typical for new buildings - has become manifest, requiring increasingly more extensive and more expensive maintenance work.



### **3. SUGGESTIONS**

A deconcentration of the fixed budget (building rents, employment contracts with the Federal Government etc.) and of the disposable budget constitutes the primary goal. Although the overall allocation of public funding rather corresponds to a cost transparency on the part of the Ministry, the total amount of available means for the University to achieve its objectives seems distorted. Each raise of fixed costs (e.g. increase of rents, bi-annual rise of salaries or the like) apparently signifies a budget increase, yet beyond the disposable part of the budget. As these fixed liabilities cannot be influenced by the University (ownership structure, employment contracts), de facto 50% of the allocated budget are heteronomous.

By establishment of quality standards and new areas of research and by enforcement of existing research performance in fields of international research, the VUW is increasingly represented as a cooperation and service partner in areas other than veterinary medicine, thus attracting new customers in the field of agriculture, food production, animal husbandry in the field of domestic and production animals etc. Independent of public funding, an increase in fund-raising of private and public means (project promotion, mission-oriented research, extended range of facilities, sponsoring, and foundations) should thus be obtained.

## Chapter 4 CURRICULUM

### 1. FACTUAL INFORMATION

#### National curriculum

Up to the end of 2003 all university studies in Austria were regulated by the University Studies Act 1997 (UniStG 1997), the General Study Law, which provided a framework for the special study regulations and entered into effect on 1 August 1997. The Special Study Act (VetMed-StG 1993) covered such basic aspects as the duration of studies, the sections of the courses of study, the diploma examinations and academic degrees (Master of Veterinary medicine, i.e. Magister/Magistra medicinae veterinariae and Doctor of Veterinary Medicine, respectively). On the basis of the Special Study Act the competent authority passed statutory regulations which specified the number of hours allocated to each subject and laid down guidelines for the curriculum. The curriculum, which was drawn up by the curricular committee (which consists of equal numbers of professors, assistant professors and students) lists all the details of the curriculum.

When the UG 2002 came into effect on 1 January 2004 the Senate of the VUW took over the competence for study regulations (see also pages 15 - 16 and Annex 2). Based on a corresponding part of the University statutes and by means of study regulation clauses, this body regulates the legal framework of the study programmes offered by the VUW, enacts curricula and modifications thereof through autonomous by-laws. So-called curricular committees assist the Senate in preparing its decisions. Currently there are two curricular committees working at the VUW, one being in charge of the degree programme and doctoral programme of veterinary medicine whereas the other is taking care of the bachelor programmes of biomedicine and biotechnology and of equine sciences, respectively, as well as of the master's programme of biomedicine and biotechnology. These curricular committees consist of two university professors, two assistant professors and two students. The results of a study course analysis, two graduate polls, evaluations and the feedback from veterinary practitioners as well as peer representatives served as a basis for the changes in the curriculum of 2002.

The study course analysis by students following the curriculum of 1994 showed that initially there had indeed been an acceleration of the average duration of studies. However, even under those conditions, only few students were capable of completing their studies successfully within the prescribed time frame (see Figures 4.1 – 4.3). Furthermore, there was an important feedback from the peer representatives as well as from veterinary practitioners acting as instructors, pointing at increasingly poor practical skills of students, which were about to graduate and to enter professional life.

Figure 4.1.: Progress of studies of students enrolled in the years 1994, 1995 and 1996

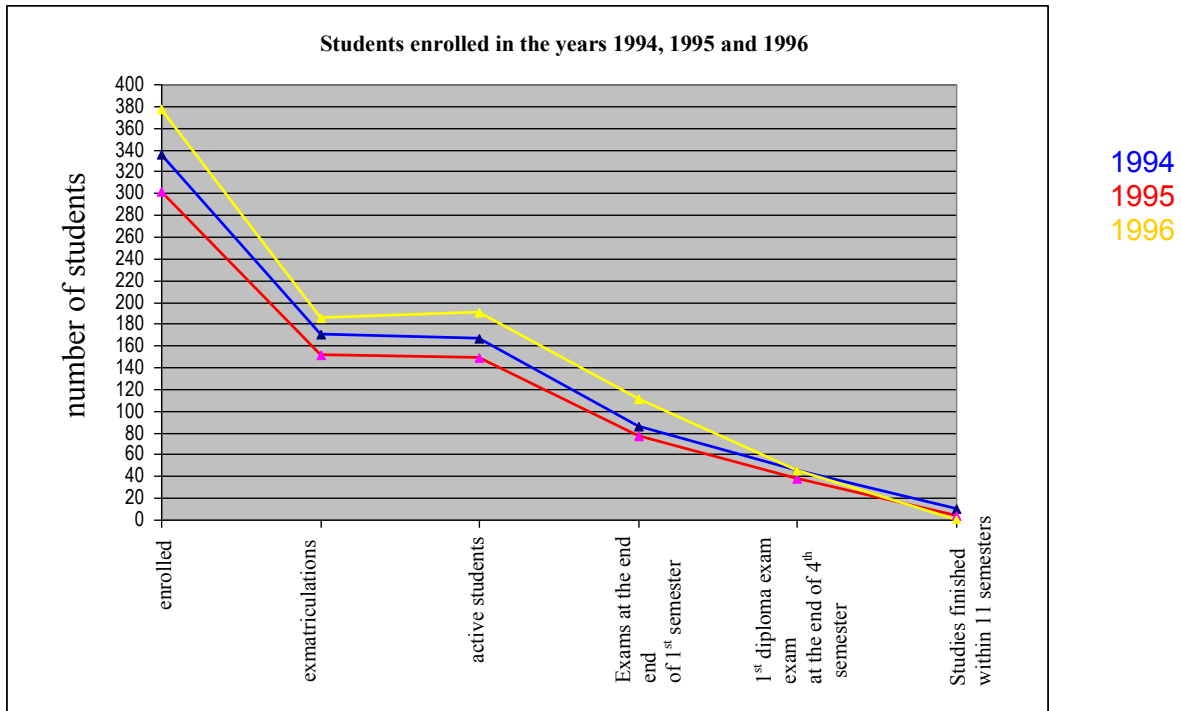


Figure 4.2.: Status of studies of students enrolled in 1994, 95, and 96 after 11 semesters

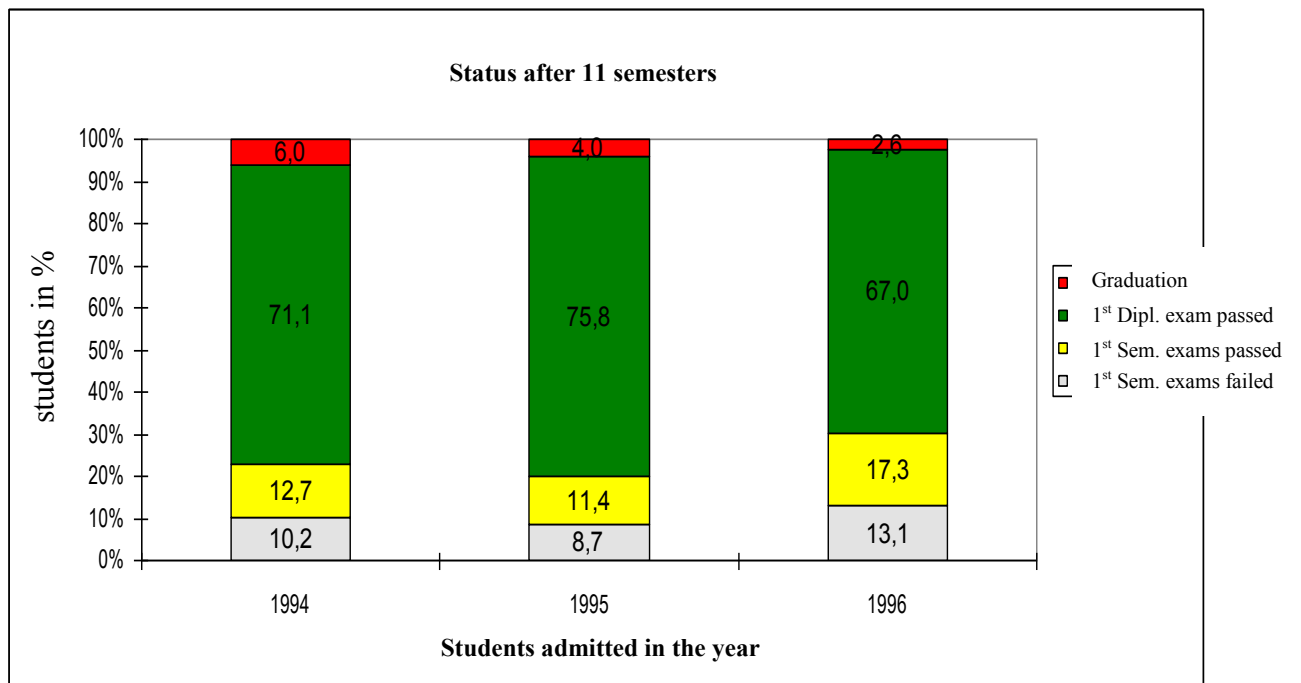
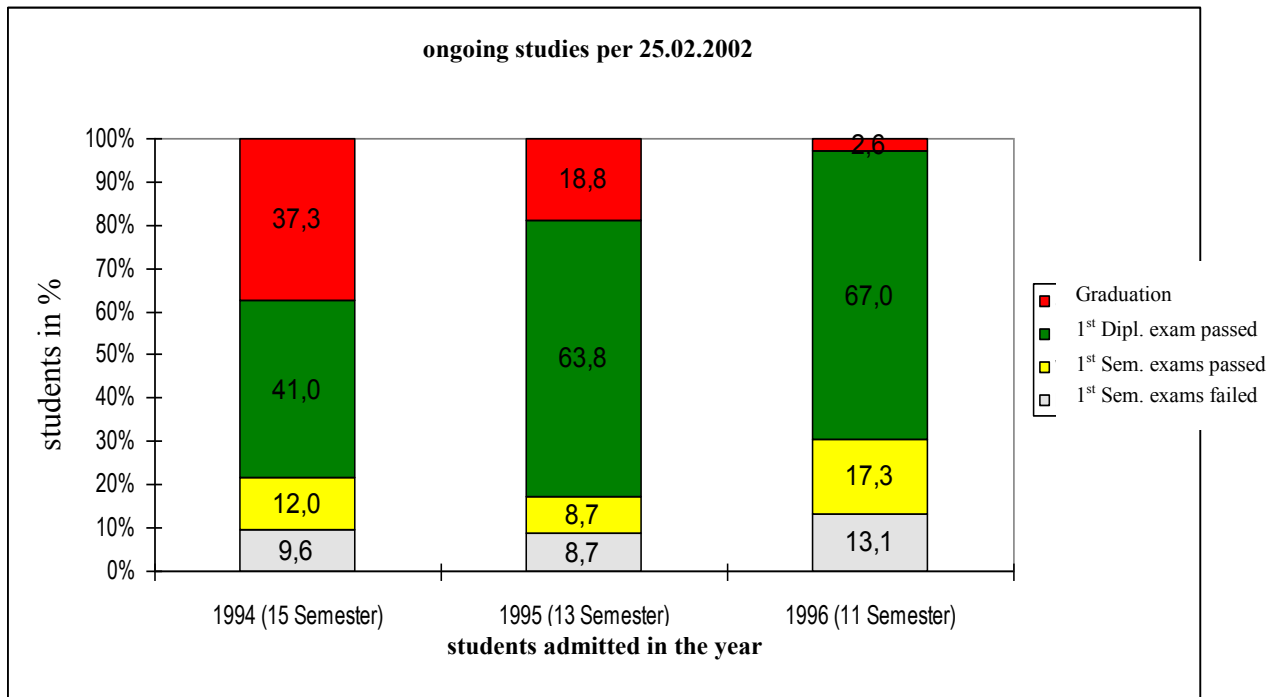


Figure 4.3.: Status of studies of students enrolled in 1994, 95, and 96 as of 25 February 2002



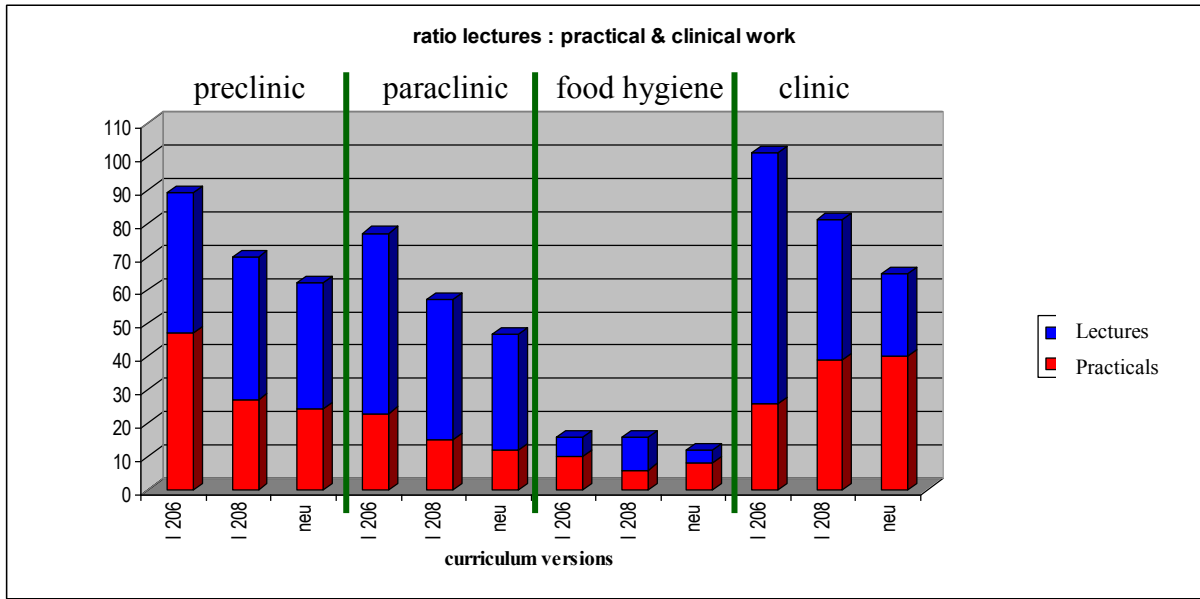
One of the main reasons for the poor academic outcome was found to be an enormous study workload of the students. This had been evaluated and compared with foreign veterinary schools in the framework of an international Tempus project.

As a consequence of these shortcomings of the training scheme, the following benchmarks were passed on to the curricular committee dealing with the planning of the new curriculum of 2002:

- a maximum of 20 hours per week of compulsory courses, in order to safeguard the feasibility of the study programme
- opportunity for self-study to an extent of 20 hours per week
- elective courses for complementation of the curriculum to an extent of 22 hours in total per week, 2 of which in the 1st year, and 4 of which in the years 2 through 6 each
- reduction of the teaching contents on the basis of a specified catalogue of study outcomes, in order to avoid an overload of the time tables
- if possible: problem-oriented teaching, interdisciplinary teaching, block courses, no face-to-face teaching
- development of team work

The distribution of theoretical and hands-on courses was evaluated on the basis of former versions of the curriculum, and was shifted towards more practical types of courses, enabling teaching/training of small groups of students (Figure 4.4).

Figure 4.4: Ratio of lectures to practical and clinical work in different versions of the curriculum



#### 4.1: Curriculum followed by all students

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

	Hours of training					Total
	Lectures	Practical work	Supervised work	Clinical work	Other*	
First year	422	98	80	-	155 <sup>1</sup>	755
Second year	255	315	30	-	160 <sup>2</sup>	760
Third year	345	157	98	-	160 <sup>2</sup>	760
Fourth year	260	45	227	113	110 <sup>3</sup>	755
Fifth year – uniform part of clinical training	45	60	30	480	215 <sup>3</sup>	830
Fifth and sixth year – specialised part of clinical training	Depends on selected module <sup>5</sup>					1295 <sup>4</sup>
Total	1327 + <sup>5</sup>	675 + <sup>5</sup>	465 + <sup>5</sup>	593 + <sup>5</sup>	800 + <sup>5</sup>	5155

\* Specifications:

<sup>1</sup> In the course of the first year of studies, all students must attend free elective subjects to the extent of a minimum of 15 and a maximum of 45 hours of training. In addition, there are compulsory elective subjects (animal behaviour and handling of domestic animals to the extent of 30 hours of training and first aid in animals to the extent of 15 hours of training). Furthermore, there is optional extramural work to the extent of 80 hours of training at the TRF or a comparable institution.

<sup>2</sup> During the second and third year of studies, all students can attend free elective subjects to the extent of a minimum of 37 and a maximum of 105 hours of training. In addition, the curriculum provides for an optional extramural work to the extent of 240 hours of training in a subject area of the first or second stage of studies, after having passed the exam of that very subject area.

<sup>3</sup> In the course of the fourth, fifth, and sixth year of studies, all students must attend free elective subjects to the extent of a total of 135 hours of training as well as 30 hours of training in the compulsory elective subject of business and clinic management. In addition, they must perform 160 hours of obligatory extramural work in the area of food inspection to be carried out at a slaughterhouse.

<sup>4</sup> All students must cover a module of specialisation to the extent of 495 hours of training. In addition, they must perform 560 hours of extramural work at the clinics of the VUW, comparable institutions in Austria or abroad, or at private animal clinics, respectively. There is a total of 240 hours scheduled for the preparation of the obligatory diploma thesis.

<sup>5</sup> The portion of hours of training depends on the selected module of specialisation.

Table 4.1.2: **Yearly curriculum studies**

For more detailed information on courses see Annex 3, pp 52 - 270.

Year 1 of the course						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Study and professional orientation	23	37	-	-	-	60
Zoology	75	-	-	-	-	75
Domestic animal science	45	-	-	-	-	45
Basics of medical physics	45	-	-	-	-	45
Basics of medical biochemistry	45	-	-	-	-	45
Specialised terminology	-	-	30	-	-	30
Medical physics	30	15	-	-	-	45
Medical biochemistry	105	45	-	-	-	150
Medical biometry and epidemiology	-	-	30	-	-	30
Scientific theory	45	-	-	-	-	45
Botany and pharmacognosy	5	-	10	-	-	15
Immunology	5	-	10	-	-	15
Compulsory elective subjects	-	-	-	-	45	45
Extramural work	-	-	-	-	80	80
Free elective subjects	-	-	-	-	30	30
Total	423	97	80	-	155	755

Year 2 of the course						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Anatomy	75	180	-	-	-	255
Histology and Embryology	60	75	-	-	-	135
Physiology	120	45	-	-	-	165
Propaedeutic imaging	-	15	30	-	-	45
Free elective subjects	-	-	-	-	40	40
Extramural work	-	-	-	-	120	120
Total	255	315	30	-	160	760

Year 3 of the course						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Animal nutrition	5	25	15	-	-	45
Botany and Pharmacognosy	-	15	23	-	-	38
Pharmacology and Toxicology	55	12	-	-	-	67
Immunology	23	-	-	-	-	23
General pathology	67	-	-	-	-	67
Animal breeding and Genetics	45	15	-	-	-	60
Bacteriology	30	15	-	-	-	45
Virology	30	15	-	-	-	45
Parasitology	30	30	-	-	-	60
Food science and public health services	30	30	45	-	-	105
Animal husbandry and animal welfare	30	-	15	-	-	45
Free elective subjects	-	-	-	-	40	40
Extramural work	-	-	-	-	120	120
Total	345	157	98	-	160	760

Year 4 of the course						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Functional pathology	-	-	30	-	-	30
Clinical propaedeutics	40	-	-	80	-	120
Practical course in Patho-histology	-	22	-	-	-	22
Practical course in Patho-anatomy	-	23	-	-	-	23
Organ-, metabolic - and infectious diseases	162	-	156	27	-	345
Anaesthesiology and emergency medicine	13	-	41	6	-	60
Medicine of epidemics	45	-	-	-	-	45
Free elective subjects	-	-	-	-	110	110
Total	260	45	227	113	110	755



<b>Year 5 of the course – uniform part</b>						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Clinical pharmacology	-	-	30	-	-	30
Clinical rotations	-	-	-	480	-	480
Epidemiology	-	30	-	-	-	30
Veterinary public health	30	-	-	-	-	30
Forensic veterinary medicine	15	-	-	-	-	15
Practical course in meat inspection	-	30	-	-	-	30
Extramural work	-	-	-	-	160	160
Free elective subjects	-	-	-	-	55	55
Total	45	60	30	480	215	830

<b>Years 5 and 6 of the course – general specialised part</b>						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Specialisation	Depends on selected module					495
Extramural work	-	-	-	560	-	560
Diploma thesis	-	-	-	-	-	240
Total	-	-	-	-	-	1295

<b>Years 5 and 6 of the course - Module "Small animal medicine" in detail</b>						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Case demonstrations	-	-	60	-	-	60
Internal medicine	-	-	45	30	-	75
Surgery	-	-	30	30	-	60
Ophthalmologic diseases	-	-	15	-	-	15
Fertility disorders and contraception	-	-	15	-	-	15
Gynaecological and andrological operations	-	-	-	22	-	22
Anaesthesiology / Intensive care	-	-	7	8	-	15
Imaging procedures	15	-	-	-	-	15
Special laboratory diagnostics: Small and domestic animals	-	-	15	-	-	15
Selected chapters of pathology	-	-	15	-	-	15
Nutrition / dietetics	-	-	7	8	-	15
Infectious diseases and vaccination programmes	-	-	15	-	-	15
Diseases of domestic animals	-	-	23	-	-	23
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	15	-	247	98	135	495

Years 5 and 6 of the course -- Module "Equine medicine" in detail						
Subject Title	Hours of training					
	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Case demonstrations	-	-	60	-	-	60
Internal medicine (except digestive tract)	-	-	30	-	-	30
Diseases of the digestive tract	-	-	30	-	-	30
Foal diseases	-	-	8	-	-	8
Soft tissue surgery	-	-	15	-	-	15
Ophthalmologic diseases	-	-	8	-	-	8
Dentistry	8	-	-	7	-	15
Special diagnosis of lameness	-	-	-	15	-	15
Diseases of the musculo- skeletal system	-	-	45	-	-	45
Practical course in orthopaedic operations	-	-	-	15	-	15
Fertility disorders	22	-	-	-	-	22
Horse breeding and veterinary management of stud farms	-	-	15	-	-	15
Large animal obstetrics	-	-	-	15	-	15
Anaesthesiology / Intensive care	-	-	15	-	-	15
Selected chapters of pathology	7	-	-	-	-	7
Nutrition / dietetics	-	-	15	-	-	15
Infectious diseases	-	-	30	-	-	30
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	37	-	271	52	135	495

Years 5 and 6 of the course - Module "Ruminant medicine" in detail						
Subject Title	Hours of training					Total
	Lectures	Practical work	Supervised work	Clinical work	Other *	
Case demonstrations	-	-	60	-	-	60
Clinical consultation / organ diseases	-	-	15	30	-	45
Veterinary herd management	-	-	60	-	-	60
Practical operation course	-	-	-	45	-	45
Diseases of the udder and mammary glands	-	-	15	-	-	15
Fertility disorders in cattle and small ruminants	-	-	30	-	-	30
Insemination in cattle	-	-	7	8	-	15
Large animal obstetrics	-	-	-	15	-	15
Diseases of the musculo-skeletal system	-	-	15	-	-	15
Infectious diseases	-	-	23	-	-	23
Performance-based nutrition and dietetics	-	-	15	7	-	22
Animal welfare and animal husbandry	-	-	15	-	-	15
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	-	-	254	105	135	495

Years 5 and 6 of the course - Module "Swine medicine" in detail						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Case demonstrations	-	-	60	-	-	60
Veterinary herd management and farm management	-	-	60	-	-	60
Organ- and infectious diseases	-	-	30	-	-	30
Practical operation courses	-	-	-	22	-	22
Fertility disorders and fertility management	-	-	30	-	-	30
Reproduction management	-	-	15	8	-	23
Advanced spermatology and semen conservation	-	8	7	-	-	15
Selected chapters of pathology	-	-	15	-	-	15
Performance-based nutrition and dietetics	-	-	22	8	-	30
Animal welfare and animal husbandry	-	-	30	-	-	30
Stable climate – methods and evaluation	-	15	-	-	-	15
Therapeutical concepts in swine production	-	-	15	-	-	15
Hygienic and technological aspects of pork production and processing	-	-	15	-	-	15
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	-	23	299	38	135	495

Years 5 and 6 of the course - Module "Zoo and wildlife medicine" in detail						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Basics of zoo and wildlife husbandry	15	-	-	-	-	15
Protection of species	-	-	15	-	-	15
Clinical zoo and wildlife medicine	30	-	30	-	-	60
Zoonoses and emerging diseases	15	-	-	-	-	15
Immobilisation and transport of wild animals	-	-	-	15	-	15
Advanced reproductive biology	-	-	15	-	-	15
Pathology of zoo and wild animals	30	23	-	-	-	53
Nutrition and feeding of zoo and wild animals	-	-	22	-	-	22
Chronobiology	-	-	22	-	-	22
Basics of wild animal biology	30	-	-	-	-	30
Physiological adaptation to extreme environmental conditions	-	-	15	-	-	15
Biotelemetry 1	-	-	-	15	-	15
Hygiene of game meat	-	-	8	-	-	8
Ecology-based wild animal management	-	-	30	-	-	30
Wild animal genetics	-	-	30	-	-	30
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	120	23	187	30	135	495

<b>Years 5 and 6 of the course - Module "Medicine of poultry, pet birds and reptiles" in detail</b>						
Subject Title	Hours of training					
	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Case demonstrations	-	-	60	-	-	60
Veterinary flock health management: poultry	-	-	37	15	-	52
Infectious and multi-factor diseases of poultry – prophylaxis and therapy	-	-	52	-	-	52
Performance-adapted nutrition in poultry	-	-	15	-	-	15
Poultry production	-	-	15	-	-	15
Selected chapters of pathology: birds and reptiles	-	13	10	-	-	23
Animal welfare and animal husbandry: birds and reptiles	-	-	30	-	-	30
Special laboratory diagnostics: birds and reptiles	-	15	-	-	-	15
Advanced parasitology: birds and reptiles	-	7	8	-	-	15
Organ- and infectious diseases: birds and reptiles	-	-	30	-	-	30
Anaesthesiology and surgery: birds and reptiles	-	-	15	8	-	23
Diseases due to husbandry and nutrition: birds and reptiles	-	-	15	-	-	15
Advanced diagnostic procedures: birds and reptiles	-	-	10	5	-	15
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	-	35	297	28	135	495

Years 5 and 6 of the course - Module "Biotechnology of reproduction" in detail						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Biotechnology in animal breeding for the enhancement of breeding strategies in farm and domestic animals	30	-	-	-	-	30
Endocrinological and anatomical-physiological requirements for reproductive biotechnological measures	30	-	-	-	-	30
Follicle extraction	-	-	-	60	-	60
In vitro techniques	30	45	-	-	-	75
Associated reproductive techniques	15	-	-	-	-	15
Artificial insemination procedures	-	-	-	15	-	15
Embryo extraction and embryo transfer	-	-	-	75	-	75
Cryobiological procedures in animal breeding	22	23	-	-	-	45
Legal, ethical and sociological aspects	15	-	-	-	-	15
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	142	68	-	150	135	495

Years 5 and 6 of the course - Module "Food science and veterinary public health services" in detail						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Basics of food inspection	-	-	30	-	-	30
Food inspection: practical execution and assessment	-	45	-	-	-	45
Legal framework of food- and meat inspection	-	-	45	-	-	45
Herd management / veterinary farm management	-	-	90	-	-	90
Food of plant origin	-	-	30	-	-	30
Hygiene and technology of food of animal origin	-	-	60	-	-	60
Quality assurance	-	-	45	-	-	45
Case studies	-	-	15	-	-	15
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	-	45	315	-	135	495



<b>Year 5 and 6 of the course - Module "Laboratory animal science, experimental medicine and alternative methods to animal experiments" in detail</b>						
Subject	Hours of training					
Title	Lectures	Practical work	Supervised work	Clinical work	Other *	Total
Basics of laboratory animal science	-	-	15	-	-	15
Biology and physiology of laboratory animals	-	-	15	-	-	15
Husbandry and handling of laboratory animals	-	-	60	-	-	60
Diseases and zoonoses	-	-	30	-	-	30
The laboratory animal as animal model	-	-	30	-	-	30
Legal framework	-	-	15	-	-	15
Anaesthesia, narcosis, euthanasia and organ extraction	30	-	-	30	-	60
Breeding of laboratory animals, mutants, and transgenic animals	-	-	30	-	-	30
Design, performance, and assessment of animal experiments	-	-	15	-	-	15
Animal experiments in toxicology and pharmacology	-	-	30	-	-	30
Immunology	-	-	15	-	-	15
Alternative and complementary methods	-	-	45	-	-	45
Subjects to be chosen from a limited course offer, Table 4.2	-	-	-	-	135	135
Total	30	-	300	30	135	495

Table 4.1.3: Number of curriculum hours taken by every student

Table 4.1.3: Curriculum hours in EU-listed subjects taken by every student

Please note that the figures given in table 4.1.3 represent the number of hours of training only referring to the general part of the curriculum, since the modules of specialisation differ in the amount they represent the various subjects.

	Subject	Hours in course					Total
		Lectures	Practical work	Supervised work	Clinical work	Other	
<b>A.</b>	<b>Basic subjects</b>						
	Anatomy (incl. histology and embryology)	135	255	-	-	-	390
	Biochemistry and molecular biology	105	45	-	-	-	150
	Biology (incl. cell biology)	120	-	-	-	-	120
	Biophysics	75	15	-	-	-	90
	Biostatistics	-	-	30	-	-	30
	Chemistry	45	-	-	-	-	45
	Epidemiology	-	30	-	-	-	30
	Genetics	45	15	-	-	-	60
	Immunology	28	-	10	-	-	38
	Microbiology	60	30	24	-	-	114
	Parasitology	30	30	8	-	-	68
	Pathological anatomy (macroscopic & microscopic)	67	45	-	-	-	112
	Pharmacy	-	12	-	-	-	12
	Pharmacology	45	-	13	-	-	58
	Physiology	120	45	-	-	-	165
	Physiopathology	-	-	30	-	-	30
	Scientific and technical information and documentation methods	30	-	-	-	-	30
	Toxicology (incl. environmental pollution)	15	10	-	-	-	25
<b>B.</b>	<b>Animal Production</b>						
	Agronomy	8	-	-	-	80*	8
	Animal behaviour (incl. behavioural disorders)	45	-	-	-		45
	Animal husbandry (incl. livestock production systems)	22	-	15	23		60
	Animal nutrition and feeding	5	25	25	-		55
	Animal protection and welfare	15	-	-	-		15
	Environmental protection	-	5	5	-		10
	Preventive veterinary medicine (incl. health monitoring programmes)	10	-	-	-		10
	Reproduction (incl. artificial breeding methods)	15	-	-	-		15
	Rural economics	-	-	-	-		80

<b>C.</b>	<b>Clinical subjects</b>						
	Anaesthetics	13	-	41	6	-	60
	Clinical examination and diagnosis and laboratory diagnostic methods	37	-	18	75	-	130
	Clinical medicine	48	-	112	492	-	652
	Diagnostic imaging	27	-	-	15	-	42
	Obstetrics	30	-	-	-	-	30
	Reproductive disorders	16	-	-	-	-	16
	State veterinary medicine, zoonoses, public health and forensic medicine	75	-	-	-	-	75
	Surgery	44	5	-	-	-	49
	Therapeutics	8	-	30	-	-	38
<b>D.</b>	<b>Food Hygiene</b>						
	Certification of food production units	-	-	10	-	160*	10
	Food certification	-	-	35	-		35
	Food hygiene and food quality (incl. legislation)	10	30	-	-		40
	Food inspection, particularly food of animal origin	10	30	-	-		40
	Food science and technology	10	-	-	-		170
<b>E.</b>	<b>Professional knowledge</b>						
	Practice management	15	15	-	-	-	30
	Professional ethics	15	-	-	-	-	15
	Veterinary certification and report writing	240	-	-	-	-	240
	Veterinary legislation	15	-	-	-	-	15

\* These subjects are also taught in several practicals (also outside the establishment) during 2 up to 4 weeks and are therefore not only topics of selected lectures.

Table 4.1.4: Curriculum hours in other subjects taken by every student

Subject	Hours in course					Total
	Lectures	Practical work	Supervised work	Clinical work	Other	
Study didactics	-	38	-	-	-	38
Specialised terminology	-	-	30	-	-	30
Propaedeutic imaging	-	15	30	-	-	45
First aid in animals	13	-	-	2	-	15

#### 4.2: ELECTIVE SUBJECTS

The general clinical training is followed by specialised training in the form of so-called modules of specialisation. Each student must choose one module of specialisation, and in case of time compatibility, can even combine up to two such modules. As soon as a specific module has been chosen, attendance of its respective courses is compulsory.

Table 4.2: **Courses organised as elective subjects**

Elective track: Small animal medicine	Courses within elective	Hours in course					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Veterinary dentistry: small and companion animals	7	-	-	8	-	15
	Oncology	-	-	30	-	-	30
	Laboratory diagnostics: instruments, methodology, and basics of interpretation	-	-	8	-	-	8
	Cytological diagnostics: horses, small animals, cloven hoof animals	-	-	15	-	-	15
	Behaviour disorders and behaviour therapy: small animals	15	-	15	-	-	30
	Complementary medicine: small animals	15	-	-	15	-	30
	Diagnostics and impact of hereditary effects on canine breeding	7	-	-	8	-	15
	Applied animal breeding and genetic hygiene in small animals	-	-	15	-	-	15
	Immuno-pathology and clinical immunology: small animals	-	-	15	-	-	15
	Neuropathology: horses, small animals	-	-	15	-	-	15
	Pathology of the endocrine system	-	-	15	-	-	15
	Physiology and pathophysiology of reproduction in small domestic animals	-	-	30	-	-	30
	Fertility management and biotechnology of reproduction: small animals	-	-	8	7	-	15
	Physiology of ageing in small animals	8	-	7	-	-	15
	Osteosynthesis in small animals	-	-	15	-	-	15
	Applied x-ray and ultra-sound anatomy in small animals	-	-	30	-	-	30

	Selected chapters of imaging technique anatomy in small animals	-	-	15	-	-	15
<b>Elective track: Equine medicine</b>	Laboratory diagnostics: instruments, methodology, and basics of interpretation	-	-	8	-	-	8
	Advanced laboratory diagnostics in horses	-	-	8	-	-	8
	Cytological diagnostics: horses, small animals, cloven-hoofed animals	-	-	15	-	-	15
	Complementary medicine: horses	-	-	30	-	-	30
	Practical and legal aspects of equestrian sport	-	-	15	-	-	15
	Musculo-skeletal apparatus in horses: diagnostic imaging	-	-	15	-	-	15
	Diagnostics of lameness by use of modern measurement techniques	-	-	15	-	-	15
	Treatment of fractures: horses	-	-		15	-	15
	Embryotransfer and associated techniques in large animals	-	-	7	8	-	15
	Advanced spermatology, conservation of semen and insemination: horses and cloven-hoofed animals	-	8	7	-	-	15
	Neuropathology: horses and small animals	-	-	15	-	-	15
	Immunopathology and pathology of the endocrine system: horses	-	-	15	-	-	15
	Feed assessment for horses	-	15	-	-	-	15
	Current topics in equine medicine	-	-	15	-	-	15
	Practical castration course: horses	-	-	-	15	-	15
	Diseases of the head and neck region and the back: horses	-	-	30	-	-	30
	Hoof correction and shoeing	-	-	-	15	-	15
	Clinical biomechanics	-	-	15	-	-	15
	Selected chapters of imaging technique anatomy in horses	-	-	7	-	-	7
<b>Elective track: Ruminant and swine medicine</b>	Laboratory diagnostics: instruments, methodology, and basics of interpretation	-	-	8	-	-	8

	Special laboratory diagnostics: cloven-hoofed animals	-	-	8	-	-	8
	Cytological diagnostics: horses, small animals, cloven-hoofed animals	-	-	15	-	-	15
	Complementary medicine: cloven-hoofed animals	-	-	30	-	-	30
	Diagnostic imaging: cloven-hoofed animals	-	-	15	15	-	30
	Embryotransfer and associated techniques in large animals	-	-	7	8	-	15
	Advanced spermatology, conservation of semen and insemination: horses and cloven-hoofed animals	-	8	7	-	-	15
	Selected chapters of pathology in ruminants and swine	-	-	15	-	-	15
	Calf diseases	-	-	15	-	-	15
	Udder and teat surgery	-	-	-	15	-	15
	Monitoring of stable climate	-	15	-	-	-	15
	Selected chapters of animal hygiene	-	15	-	-	-	15
	Endocrinology: cloven-hoofed animals	-	-	-	30	-	30
	Immunopathology: cloven-hoofed animals	-	-	15	-	-	15
<b>Elective track: Zoo- and wildlife medicine</b>	Presentation and analysis of scientific data in wildlife ecology	-	-	22	-	-	22
	Excursions in wildlife ecology	-	-	30	-	-	30
	Terrestrial and aquatic ecotoxicology	-	-	45	-	-	45
	Current topics in wildlife ecology	-	-	30	-	-	30
	Applied anatomy in zoo animals	-	-	15	-	-	15
	Advanced parasitology: zoo and wild animals	-	-	15	-	-	15
	Tropical veterinary medicine	-	-	30	-	-	30
	Parasitic tropical diseases	-	15	-	-	-	15
	Biotelemetry 2	-	-	15	-	-	15
	Geographic information systems	-	-	15	-	-	15
	Rehabilitation and release of wild animals	-	-	22	-	-	22
	Contraception in zoo and wild animals	-	-	15	-	-	15
	Behavioural endocrinology in wild animals	30	-	-	-	-	30

<b>Elective track: Poultry</b>	Histology of poultry	-	15	-	-	-	15
	Diagnostic imaging: birds and reptiles	-	-	15	-	-	15
	Bee diseases	15	15	-	-	-	30
	Fish diseases	30	15	-	-	-	45
	Fish production and aquaculture	-	15	-	-	-	15
<b>Elective track: Food hygiene</b>	Application of geographic information systems (GIS) for the control of animal epidemics	15	15	-	-	-	30

In the course of specialised training (from the tenth to the twelfth semester), students have to choose elective subjects from the course offer of the respective module of specialisation to an extent of 135 hours of training, in order to complement the compulsory subjects. The choice is limited to the course offer indicated in the study programme. In addition, there are a number of elective subjects which can be connected with various modules of specialisation. This means that for small animal medicine, courses taken from the module of specialisation in zoo and wild animal medicine, as well as medicine for poultry, pet birds and reptiles can be accredited. For specialisation in equine medicine, courses from the module of cloven-hoofed animals as well as biotechnology of reproduction can be chosen. For specialisation in medicine for ruminants and swine, subjects from the modules for zoo and wild animal medicine, medicine for poultry, pet birds and reptiles, biotechnology of reproduction, or food sciences and public veterinary health services can be accredited, respectively. For zoo and wild animal medicine, all subjects listed under clinical veterinary medicine can be chosen. For poultry, courses must be taken from the specialisation modules of small animal medicine, cloven-hoofed animal medicine, medicine of zoo and wild animals, or food sciences and public veterinary health services. For the module of food sciences and public veterinary health services, courses are available from cloven-hoofed animal medicine and medicine for poultry, pet birds and reptiles.

#### 4.3: OPTIONAL SUBJECTS

Table 4.3: **Optional subjects in the veterinary curriculum**

Title	Year(s) offered	Hours in course					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
Veterinary dentistry: small and domestic animals	5 & 6	7	-	-	8	-	15
Oncology	5 & 6	-	-	30	-	-	30
Laboratory diagnostics: instruments, methodology, and basics of interpretation	5 & 6	-	-	8	-	-	8
Cytological diagnostics: horses, small animals, cloven-hoofed animals	5 & 6	-	-	15	-	-	15

Behaviour disorders and behaviour therapy: small animals	5 & 6	15	-	15	-	-	30
Complementary medicine: small animals	5 & 6	15	-	-	15	-	30
Diagnostics and impact of hereditary effects on canine breeding	5 & 6	7	-	-	8	-	15
Applied animal breeding and genetic hygiene in small animals	5 & 6	-	-	15	-	-	15
Immuno-pathology and clinical immunology: small animals	5 & 6	-	-	15	-	-	15
Neuropathology: horses, small animals	5 & 6	-	-	15	-	-	15
Pathology of the endocrine system	5 & 6	-	-	15	-	-	15
Physiology and pathophysiology of reproduction in small domestic animals	5 & 6	-	-	30	-	-	30
Fertility management and biotechnology of reproduction: small animals	5 & 6	-	-	8	7	-	15
Physiology of ageing in small animals	5 & 6	8	-	7	-	-	15
Osteosynthesis in small animals	5 & 6	-	-	15	-	-	15
Applied x-ray and ultra-sound anatomy in small animals	5 & 6	-	-	30	-	-	30
Selected aspects of imaging technique anatomy in small animals	5 & 6	-	-	15	-	-	15
Advanced laboratory diagnostics in horses	5 & 6	-	-	8	-	-	8
Complementary medicine: horses	5 & 6	-	-	30	-	-	30
Practical and legal aspects of equestrian sport	5 & 6	-	-	15	-	-	15
Musculo-skeletal apparatus in horses: diagnostic imaging	5 & 6	-	-	15	-	-	15
Diagnostics of lameness by use of modern measurement techniques	5 & 6	-	-	15	-	-	15
Treatment of fractures: horses	5 & 6	-	-	-	15	-	15
Embryotransfer and associated techniques in large animals	5 & 6	-	-	7	8	-	15
Advanced spermatology, conservation of semen and insemination: horses and cloven-hoofed animals	5 & 6	-	8	7	-	-	15



Immunopathology and pathology of the endocrine system: horses	5 & 6	-	-	15	-	-	15
Feed assessment for horses	5 & 6	-	15	-	-	-	15
Current topics in equine medicine	5 & 6	-	-	15	-	-	15
Practical courses in castration: horses	5 & 6	-	-	-	15	-	15
Diseases of the head and neck region and the back: horses	5 & 6	-	-	30	-	-	30
Hoof correction and shoeing	5 & 6	-	-	-	15	-	15
Clinical biomechanics	5 & 6	-	-	15	-	-	15
Selected chapters of imaging technique anatomy in horses	5 & 6	-	-	15	-	-	15
Special laboratory diagnostics: cloven-hoofed animals	5 & 6	-	-	8	-	-	8
Complementary medicine: cloven-hoofed animals	5 & 6	-	-	30	-	-	30
Imaging diagnostics: cloven-hoofed animals	5 & 6	-	-	15	15	-	30
Selected chapters of pathology in ruminants and swine	5 & 6	-	-	15	-	-	15
Calves diseases	5 & 6	-	-	15	-	-	15
Udder and teat surgery	5 & 6	-	-	-	15	-	15
Monitoring of stable climate	5 & 6	-	15	-	-	-	15
Selected chapters of animal hygiene	5 & 6	-	-	-	15	-	15
Endocrinology: cloven-hoofed animals	5 & 6	-	-	-	30	-	30
Immunopathology: cloven-hoofed animals	5 & 6	-	-	15	-	-	15
Presentation and analysis of scientific data in wildlife ecology	5 & 6	-	-	22	-	-	22
Excursions in wildlife ecology	5 & 6	-	-	30	-	-	30
Terrestrial and aquatic ecotoxicology	5 & 6	-	-	45	-	-	45
Current topics in wildlife ecology	5 & 6	-	-	30	-	-	30
Applied anatomy in zoo animals	5 & 6	-	-	15	-	-	15
Advanced parasitology: zoo and wild animals	5 & 6	-	-	15	-	-	15
Tropical veterinary medicine	5 & 6	-	-	30	-	-	30
Parasitic tropical diseases	5 & 6	-	15	-	-	-	15
Biotelemetry 2	5 & 6	-	-	15	-	-	15
Geographic information systems	5 & 6	-	-	15	-	-	15
Rehabilitation and release of wild animals	5 & 6	-	-	22	-	-	22

Contraception in zoo and wild animals	5 & 6	-	-	15	-	-	15
Behavioural endocrinology in wild animals	5 & 6	30	-	-	-	-	30
Diagnostic imaging: birds and reptiles	5 & 6	-	-	15	-	-	15
Bee diseases	5 & 6	15	-	-	15	-	30
Fish diseases	5 & 6	30	-	-	15	-	45
Fish production and aquaculture	5 & 6	-	15	-	-	-	15
Application of geographic information systems (GIS) for the control of animal epidemics	5 & 6	15	-	-	15	-	30
Ichthyology	1 – 6	15	15	-	-	-	30
Apiology	1 – 6	15	15	-	-	-	30
Advanced and conversational English	1 – 6	-	-	30	-	-	30
English for clinical medicine	1 – 6	-	-	30	-	-	30
History of the medical sciences, with special reference to veterinary medicine	1 – 6	15	-		-	-	15
Scientific presentation	1 – 6	-	-	15	-	-	15
Social competence	1 – 6	-	-	15	-	-	15
Project design and application for research funds	1 – 6	-	-	15	-	-	15
Advancement training for female executives	1 – 6	-	-	30	-	-	30
Introduction to EDP-applications	1 – 6	-	-	15	-	-	15
Ethics of animal protection and human-animal bond	1 – 6	-	-	15	-	-	15

#### 4.4: OBLIGATORY EXTRAMURAL WORK

During the general clinical training, all students have to perform part of their clinical practice in propaedeutics (7<sup>th</sup> or 8<sup>th</sup> semester) and five days of their clinical rotations (9<sup>th</sup> semester) at the TRF.

In addition, students of the degree programme of veterinary medicine have to complete a total of 26 weeks of extramural work. This extramural work does not denote courses, but is destined to constructively complement professional preparatory training or scientific training and serves the acquisition of skills as well as the preparation for future professional practice.

Students are not permitted to attend courses during the completion of their extramural work.

18 weeks of extramural work must be performed at the following institutions:

- 4 weeks of food inspection at a slaughterhouse after completion of all courses of basic training in food sciences and veterinary public health services
- 10 weeks of extramural work in the subject area of specialisation after successful completion of an oral comprehensive exam before a committee with a practical component to test the clinical, diagnostic and therapeutic skills
- 4 weeks of extramural work with a veterinarian, in one of the animal clinics of the VUW or at a similar institution of the student's choice after successful completion of a written

comprehensive exam before a committee of the subjects ‘Organ -, metabolic- and infectious diseases’, ‘Emergency medicine’, and ‘Epidemiology’

8 weeks of extramural work can be performed at the following institutions by choice of the students:

- 2 weeks of agricultural training at the TRF of the VUW or a comparable institution, after successful completion of a written comprehensive exam before a committee of the subjects ‘Zoology’ and ‘Animal science’ and an oral comprehensive exam before a committee of the subjects ‘Medical biochemistry’ and ‘Medical physics’
- 2 to 6 weeks of extramural work following successful completion of the courses and exams of a given subject area out of the second stage of studies; in the area of ichthyology or apiology, zoo and wildlife medicine, or laboratory animal science, respectively, at the earliest after successful completion of all exams of the second stage of studies
- 2 to 6 weeks of extramural work with a veterinarian, in one of the animal clinics of the VUW or at a similar institution of the students’ choice after successful completion of a written comprehensive exam before a committee of the subjects ‘Organ -, metabolic- and infectious diseases’, ‘Emergency medicine’, and ‘Epidemiology’

Table 4.4: **Obligatory extramural work that students must undertake as part of their course**

Nature of work	Minimum period	Year of the course in which training is carried out
Propaedeutics	2 days	4
Clinical Rotations	5 days	5
Extramural work 1	2 weeks	1
Extramural work 2	2 – 6 weeks	2
Extramural work 3	4 weeks	4
Extramural work 4	4 weeks	5
Extramural work 5	10 weeks	5

#### 4.5: RATIOS

$$\frac{\text{Theoretical training}}{\text{Practical and clinical training}} = \frac{1469.5}{3035.5} - \frac{1327.5}{3177.5} = \frac{1}{2.06} - \frac{1}{2.39}$$

$$\frac{\text{Clinical training}}{\text{Theoretical and practical training}} = \frac{1303}{2467} - \frac{1181}{2924} = \frac{1}{1.89} - \frac{1}{2.47}$$

These ratios vary depending on the modules of specialisation, since only the total number of 495 hours of training is given, while the proportion of different types of courses can differ. That is why in both cases, the minimum and maximum figures are given.

#### 4.6: FURTHER INFORMATION ON THE CURRICULUM

The experiences with the curriculum of 1994 have shown that in the past probably too much attention had been paid to the examinations as such. The great number of single subject-related exams was opposed to the development of a multidisciplinary and interdisciplinary understanding, and based on the Austrian federal regulations of holding exams at the beginning, middle and end of a term, the schedule of exams was constantly competing against the efficiency of course performance. Therefore, it was one of the main underlying ideas of the recent curriculum reform of 2002 to entirely reverse this situation and to abandon single subject-related exams and introduce comprehensive joint examinations before a committee. This also helped to counteract disproportional individualism by single examiners.

**A.** The basic subjects are scheduled as compulsory subjects of the 1<sup>st</sup> and 2<sup>nd</sup> diploma exams during the first three years of the curriculum. In the first year of studies, students are taught the basics of physics, chemistry and biochemistry, as well as animal science, zoology, basics of epidemiology, immunology, and botany. Furthermore, they will be given an approach to the understanding of scientific literature, research, and ethics.

The subjects of anatomy, histology and embryology, physiology, and propaedeutic imaging are dealt with in the second year of study in an organ-oriented and interdisciplinary manner.

The basics of the para-clinical subjects are presented as subject-oriented blocks in the third year of studies. In the winter term there is one block of botany and pharmacognosy, nutrition, and pharmacology, and a second consisting of immunology, animal breeding and genetics, and general pathology. In the summer term the subjects parasitology, bacteriology, and virology form one block, while the other is composed of animal husbandry and animal welfare as well as food hygiene.

As mentioned above, the introduction of the curriculum of 2002 as compared to the curriculum of 1994 caused a major change in the organisation of exams, by abandoning a great number of single exams and replacing them by so-called joint commissional exams. The implementation of this type of examination intends to enforce a way of interdisciplinary thinking and learning in order to enhance the functional understanding of the whole issue. In addition, the drastic reduction of examinations was supposed to direct the students' focus to actual training within the courses.

These comprehensive exams to be performed before a committee are:

At the end of the 1 <sup>st</sup> semester	Zoology and domestic animal science (written) Basics of medical physics and of medical biochemistry (written)
At the end of the 2 <sup>nd</sup> semester	Medical physics and medical biochemistry (oral)
At the end of the 4 <sup>th</sup> semester	Anatomy, histology and embryology, physiology (oral)
At the end of the 5 <sup>th</sup> semester	Botany and pharmacognosy, pharmacology, nutrition (written) Immunology, animal breeding and genetics, general pathology (written)
In the 6 <sup>th</sup> semester	Parasitology, bacteriology, virology (written) Animal husbandry and animal welfare, food hygiene (written)

**B.** Since most of the first year students no longer have a relation to or previous knowledge of agricultural production, the curriculum is paying increased attention to the area of animal production. Currently more than 90 % of the beginners come from an urban environment. The curriculum allows for this fact by offering introductory information at the very beginning of the study programme (study and professional orientation). In addition, the compulsory subject

of domestic animal science was established in the first semester and is also part of an exam. In the third year of studies the basics of the compulsory subjects of animal husbandry and animal welfare are being conveyed, and will be complemented in the course of the general and the subsequent specialised training by reproductive medicine and intense herd health management, with a focus on preventive medicine and farm monitoring. Furthermore, students can intensify their knowledge about handling of animals and animal husbandry in a number of elective courses.

**C.** In the area of the clinical subjects sustained changes have been introduced since 1996. By a number of new appointments, various subjects such as clinical immunology, experimental and laboratory animal science, and anaesthesiology and intensive care, respectively, have been recently established. These subjects have also been embedded in the curriculum, either as part of the general training or as part of the specialised clinical training. When implementing new professorial chairs, special emphasis was given to positioning them as an intersection to the clinics, in order to smooth the transition from the theoretical and paraclinical to the clinical subjects, which should not be manifested as a borderline. Apart from this, highest priority is given to the implementation of adequate training by teaching students in groups of 5 to 6 in the clinical subjects. Thereby all students during the general clinical training have to cover the basics of all animal species, while the subsequent specialisation brings about a deepening aspect. There is an option of combining a maximum of two modules, based on time compatibility. The following additional measures were taken in order to further intensify clinical training in the area of farm animal medicine at the TRF: employment of three veterinarians, purchase of three motor vehicles (pick-ups), cooperation contracts with external practitioners, and preliminary constructional adaptations. The biggest change in this area will come forth through the implementation of the entirely new concept for the use of the TRF, which became possible through the transfer of ownership to the VUW in the year 2005.

**D.** In the area of food hygiene, a completely new training concept was developed on the basis of the experiences gathered during the past years. Food hygiene is of extraordinarily low acceptance by the students, which leads to poor training even for those students who were actually interested in this field. For this reason, the subject food hygiene was reduced during general training to the extent necessary for general approbation. In addition, a proper module of specialisation was introduced, which constitutes a compulsory requirement for future professional activity in this area.

**E.** The course ‘business management and practice management’ is classified as a compulsory elective subject. It can be taken after successful completion of the exams of the first semester and as a must prior to graduation from the study programme. The increasing importance of ethics was paid tribute to by the introduction of the new subject of science theory. This subject is part of the first diploma exam and consists of the following courses: ‘basics of theory of cognition and of science’, ‘ethics’, and ‘scientific literature – basics of information’. These courses offer 15 hours of training each. The subject ‘regulatory framework of veterinary medicine’ is part of the third diploma exam and consists of 30 hours of training. These subjects primarily deal with the national legal framework with reference to international and EU regulations, respectively. At the end of the study programme, students have to write a diploma thesis, which accounts for a total of 240 hours of training.

The attendance of the courses specified in the curriculum is compulsory on principle. With the exception of lectures, the actual attendance and knowledge will be evaluated either by a single check at the end of the course or by regular tests during the course. Elective courses and

optional extramural work are basically only specified by the extent of hours of training, and can be chosen from a specific and limited offer. Once selected, their attendance is equally compulsory and is evaluated as described above.

#### 4.7: SPECIFIC INFORMATION ON THE PRACTICAL CLINICAL TRAINING

The ‘clinical rotations’ at the VUW are part of the general clinical education of the 9<sup>th</sup> semester and are thus compulsory for all students. Except for the course of ‘clinical pharmacology’ with a total of 30 hours of training, this 9<sup>th</sup> semester is dedicated to the ‘clinical rotations’. The students are not permitted to attend other than these courses as ruled out in the curriculum.

The ‘clinical rotations’ provide for five days of training each, in the following disciplines / at the following institutions:

- Internal medicine and clinical epidemiology in horses
- Internal medicine and clinical epidemiology in small animals
- Internal medicine and clinical epidemiology in ruminants
- Internal medicine and clinical epidemiology in swine
- Internal medicine and clinical epidemiology in poultry
- Surgery and ophthalmology in horses
- Surgery and ophthalmology in small animals
- Anaesthesiology and intensive care medicine
- Obstetrics, gynaecology and andrology in horses
- Obstetrics, gynaecology and andrology in small animals
- Orthopaedics in ungulates and cloven-hoofed animals
- Teaching and Research Farm of the VUW

Students are assigned patients and have to follow and document their entire trace from anamnesis to diagnosis, therapy and treatment. Such documentation can subsequently be used as a basis for the diploma thesis. The group size during the clinical rotations varies between 5 and 6 students, depending on the year of studies.

In order to prepare for the 'clinical rotations', propaedeutical clinical practices are held in the 7<sup>th</sup> or 8<sup>th</sup> semester, respectively. These clinical practicals are also obligatory for all students. At the beginning of the 7<sup>th</sup> semester, the clinical propaedeutic courses start with two weeks of introductory lectures, followed by a written exam, which has to be passed in order to qualify for participation in the propaedeutical clinical practicals. In order to guarantee a small group size of 5 to 6 students, these clinical practicals are offered both in the winter- and in the summer term for one half of the students each. The additional clinical practicals of that study year can be attended in the respective alternative semester.

Emergency medicine is a compulsory part of the general clinical training during the 8<sup>th</sup> semester. In addition, all students must assist at that unit for five days during the ‘clinical rotations’.

An opportunity to work at the mobile clinic off-campus exists in the frame of activities offered at the department for farm animals and herd management. For this purpose, the institution operates a special vehicle, in order to enable students to visit external enterprises. As an additional measure, a further veterinarian was employed at the TRF in November 2005, who is in charge of taking students in training at the TRF to external locations. This will happen in cooperation with the respective institutional veterinarians, in order to avoid competition with free-lance practitioners. The amount of time invested cannot be calculated separately, since it depends on the actual needs of the enterprises. As a total, this amount of time is contained in the tables 4.1.3, 4.2, and 4.3, respectively.

#### 4.8: SPECIFIC INFORMATION ON THE PRACTICAL TRAINING OF FOOD HYGIENE

For practical training of food hygiene students have access to four different facilities. Two slaughterhouses are located west, one north and one east of Vienna within distances from 35 to 60 km from Vienna.

Unit 1 (Gewerbering, 2020 Hollabrunn): Cattle/pig, EU-approval

Activities of the students: Visitation of pig slaughter; meat inspection of carcass, ante-mortem inspection, carcass surface sampling (EU decision 2001/471)

Unit 2 (Schloßstr. 3, 3062 Kirchstetten): Cattle/pig, EU-approval

Activities of the students: Visitation of pig slaughter; meat inspection of carcass, also practical meat inspection of thoracic inner organs and liver, ante-mortem inspection, carcass surface sampling (EU decision 2001/471)

Unit 3 (Bundesversuchswirtschaften, 2460 Bruckneudorf): Cattle/pig

Activities of the students: Visitation of cattle slaughter; full course of meat inspection; ante-mortem inspection, carcass surface sampling (EU decision 2001/471)

Unit 4 (Rotheau 70, 3153 Eschenau): Cattle, EU-approval

Activities of the students: Visitation of cattle slaughter; meat inspection of carcass, also practical meat inspection of thoracic inner organs and liver, ante-mortem inspection, carcass surface sampling (EU decision 2001/471)

Each student attends one cattle (unit 3 or 4) and one pig slaughter (unit 1 or 2) excursion. Group size per excursion: 7 students, one teacher. Transportation costs (minivans) are covered by the excursion budget of the department.

Schedule:

6.00 a.m.: Start in Vienna, transportation (about 60 minutes) in a small bus (1 driver, 1 teacher, 7 students) to the slaughterhouse

Teaching at the slaughterhouse:

about 45 minutes for ante mortem inspection and stunning

about 45 minutes for hygiene of the slaughter process

about 90 minutes for meat inspection

about 60 minutes transportation back to Vienna

## 2 COMMENTS

The course of studies of veterinary medicine serves as scientific and practical training for the veterinary profession in all its specialties. This course of studies should impart well-founded fundamental knowledge in all fields of veterinary medicine and confer competence and problem-solving capacity by means of practice-oriented instruction. More comprehensive training in a field of the student's choice is to convey practical and specialised knowledge beyond the general requirements. This should enable graduates for the veterinary profession by supplying them with a better start into their field of specialisation. The qualification profile of graduates of veterinary medicine specifies the intellectual and practical qualifications as well as social skills necessary to achieve professional competence and conveys the absolute necessity of post-graduate continuing education.

### Qualification profile

The studies of veterinary medicine serve the acquisition of fundamental knowledge in the fields of veterinary medicine and natural sciences and the conveyance of extensive and broad knowledge of the theoretical and practical aspects of animal medicine as well as practice-relevant subjects associated with food production.

The professional activities of graduates comprise, in particular:

- curative activities in the field of large and small animal medicine
- monitoring activities in the field of food production
- administration of all activities of animal protection
- realisation of all measures for the prevention and control of epidemics
- observation of preventive veterinary measures serving public health
- carrying out of activities in the field of reproductive medicine in large and small animals
- research and development in pharmaceutical, biotechnological and other industrial fields
- teaching and research

The objectives of the studies of veterinary medicine are thus the conveyance of:

- well-founded fundamental knowledge in the field of natural sciences
- a sound understanding of the morphology and physiology of the system and behaviour of animals as well as their needs
- a firm knowledge of the pathological processes which can take place in organs and organ functions of the various species
- profound comprehension of infectious and non-infectious diseases as well as their impact on humans, animals and the quality of food
- knowledge of biotechnology
- a well-founded understanding of the effects of xenobiotics on humans, animals and the quality of food, medical-ethical knowledge, and
- the basic understanding which is essential for the acquisition of new methods and knowledge and allows for continuing education in line with scientific progress

Professional and key qualifications

Upon completion of the general phase of studies, the graduate should possess the following professional abilities for curative activities:

- to draw up a patient history based on observations made by the graduate or others and to convert this into starting points for examination and treatment
- carry out a physical examination as well as simple laboratory tests
- to draw up a summary of symptoms as well as evaluation of their relevance
- be able to arrive at a preliminary diagnosis and differential diagnosis
- to plan further testing and the collection of samples for such further examinations
- to be able to arrive at a diagnosis
- to be able to come to a prognosis concerning the potential outcome of a disease
- to carry out a therapy or the prescription of such a therapy
- to recommend prescription of measures to prevent diseases
- to guarantee the proper handling and use of medication, and
- to manage a veterinary practice including its pharmacy

Moreover, the graduate should possess the following professional qualifications:

- to give advice on the behaviour, keeping and handling of animals
- to judge as to whether a disease or treatment poses a health risk to humans or animals or a danger to the environment
- to be able to decide which animals or products of animal origin are suitable for human consumption, and
- the professional requirements for relevant continuing education and specialisation in the non-curative fields of the profession



These professional qualifications apply to all species covered in the studies of veterinary medicine and include life or organ-threatening diseases, disorders relevant in public health as well as common diseases or those considered important for reasons other than those mentioned above.

The general phase of studies is followed by compulsory specialised training of higher qualification in the specialty of the student's choice.

The qualification goals of the relevant specialty comprise systematic specialisation with the objective of attaining higher qualification in the chosen field in order to confer the basis for further post-graduate specialisation.

Fields in which specialised education can be completed:

- Clinical Veterinary Medicine
- Food Sciences, Veterinary Public Health Services
- Biotechnology of Reproduction
- Laboratory Animal Science, Experimental Medicine and Alternative Methods to Animal Experiments

Within the field of Clinical Veterinary Medicine, the student can choose among the following modules:

- Small animal medicine
- Equine medicine
- Medicine of ruminants and swine
- Zoo and wildlife medicine
- Medicine of poultry, pet birds and reptiles

Specialised education in the fields of fish and bee sciences is ensured through a selection of courses which can be completed alternatively.

The professional qualifications in the field of clinical veterinary medicine are related to the knowledge of common diseases of the various species, the prevention and treatment of these as well as the ability to recommend further therapies.

In the fields of food sciences, veterinary public health services, biotechnology of reproduction as well as laboratory animal science, experimental medicine and alternative methods to animal experiments, the professional qualifications comprise systematic specialisation in the relevant field.

From the VUW's point of view it is inevitable to constantly adapt the curriculum based on current developments, in order to best achieve the listed objectives. Periodical analyses of the graduates' actual qualifications and of the requirements of the labour market are equally necessary to streamline these adaptive measures. The first such analysis was performed by the VUW in 2004, the results of which have already led to a modification of the curriculum of 2002. This is also the reason for the current revision of teaching objectives and study outcomes of the modules of specialisation, a process which should be finished at the end of the summer term 2006.

### **3 SUGGESTIONS**

Future analyses of graduates' qualifications and market needs will be necessary as a basis for decisions regarding ongoing curriculum update. The financial needs for such analyses should be covered by the Austrian Federal Ministry of Education, Science and Culture (bm:bwk).

Adaptations of the curriculum should lead to a better acceptance of training programmes and an increasing competence in the professional fields.

## Chapter 5 TEACHING: QUALITY AND EVALUATION

### 1. FACTUAL INFORMATION

#### 5.1: THE TEACHING PROGRAMME

The sequence of courses is regulated by the curriculum, the structure of which is supposed to facilitate working in a team and to enable students to perform parts of their studies at acknowledged universities abroad.

The vice-rectorate for study affairs is in charge of coordinating the implementation of the curriculum. In close cooperation with the curricular committee, catalogues of specified and coordinated learning outcomes are composed for every course and made available in an online format. Further tasks comprise the precise placement of students in groups, if needed by separate registration for courses and the compilation of the time tables.

Thus the study programme of veterinary medicine is meant to serve the scientific and practical training for the veterinary profession in all areas of specialisation. Besides professional qualifications, the basic scientific skills have to be acquired in order to enable and obligate the graduates to obtain continuing education based on the latest scientific developments, to follow up on scientific literature in their field of specialisation and to adopt new findings and techniques. Students should be enabled to recognise scientific problems, to describe them by use of medical terminology and to critically judge the significance of scientific articles in the field of medicine and related areas of natural sciences.

The graduates must be aware of their responsibility towards patients, clients and society and must be familiar with the legal framework of regulations for their professional activities. They must equally recognise their affiliation to the veterinary profession and must commit themselves to contribute to a positive public appearance through their personal behaviour. They have to be aware of the limitations of their own knowledge and proficiency and must have gained sufficient insight into the structure of the veterinary health system, in order to take appropriate actions. Furthermore, they must be conscious about the interactions between man, animal and the environment and the systemic effects thereof, and they must at all times be ready and willing to stand up for the well-being of animals. Based on these requirements, the curriculum of 2002 aims at a considerably more intense cross-linking of different subjects, which promotes increased attention to a problem-oriented way of studying. This approach is also allowed for by abandoning the great number of single exams in all subjects and by introducing comprehensive examinations before a committee. This concept will be supported by the amplified use of web-based facilities. In that respect, the new web application VUW++ was implemented in 2004. The newly designed 'website for vocational training' offers not only all information but also necessary forms and documents as downloads. For further improvement of the online services, eight terminals were installed next to the lecture halls and in the assembly hall for convenient use by all students.

Until now, the university teaching staff has had the opportunity to publish the course documentation by using a special server, which could then be accessed and downloaded by the students at any time. These teaching supplements compiled by the various departments of the VUW in electronic format, will now be transformed into a standardised way and made available to all students and other people interested.

In addition, the implementation of an e-learning programme was initiated in the winter semester of 2005/06 on the principle of "blended learning". In the form of a project, this concept will be installed on the entire campus to serve as an information and teaching platform under the title of Vetucation™. Currently the contents are being worked on by an e-learning factory, which is steered by a directive committee. The assembly and extension of this e-learning concept can be realized through successful raising of separate project funds on

the one hand and through allocation of additional funds from the university's own global budget on the other hand.

Vetucation™:

The e-learning offer at the VUW ought to bring about the following advantages:

- more flexible configuration of teaching activities
- raise of quality through the combination of text, images and sound leading to an optimal way of editing the teaching contents
- increased interaction and communication between students and teachers
- time relief for teaching staff leading to an enhanced capacity to supervise the students in small groups as required in the clinical area
- reduction of the use of and impact on animals during the veterinary training as a measure of animal protection
- consistent layout and comparable structures of already existing descriptions of teaching contents
- creation of e-portfolios
- opening up to new target groups (e.g. pupils, veterinary practitioners)
- continuing and postgraduate education for veterinary practitioners

Target groups for Vetucation™:

- veterinary students at all stages of instruction
- working students, students with children
- veterinarians: continuing and postgraduate education to retain the *ius practicandi*
- teachers at secondary schools to provide information to interested future students
- high-school students and first-year students to optimise their knowledge of natural science

Advantages of e-learning for the students:

- improved temporal and spatial flexibility
- increased comprehensibility of contents through the combination of text, image, and sound
- simple reproducibility of steps
- easy access to teaching contents for working students and/or persons with other obligations (e.g. parenthood)
- possibility of simulations (virtual laboratories)
- possibility of self-evaluation to assess one's own performance
- additional development of competence in the area of information technologies
- increasing motivation

Advantages for teaching staff:

- opening up to new target groups
- opportunity for postgraduate and continuing education
- cross-linking at all times
- media-proof editing of teaching contents at a high level
- procuration and testing of essential previous knowledge as a preparation for intensive courses
- individual configuration of teaching by taking into account the respective proficiency level
- development of competence in the field of computer-aided and network based teaching

- time saving and raise of quality through cooperation with other teaching staff members and exchange of materials

Lecture notes are offered in written and electronic format. Apart from few exceptions, the contents of these notes have either been approved by the responsible representative of the respective subject area or the notes are provided directly by staff members of that particular subject area. In the case of electives, the scripts serve the confinement and brief description of the teaching contents. In the case of compulsory courses, the scripts are used to present an overview of the subject matter. They provide information to the students at a general level in the form of a summary and they facilitate access to the subject in question. Detailed knowledge is derived by the students from textbooks.

There are external arrangements with slaughterhouses, food processing firms and free-lance veterinarians working in small animal and farm animal clinics.

In order to provide practical training in the farm animal sector within the scope of the mobile clinic, the university holds a number of separate legal contracts with farm animal practitioners, whereby, within the scope of the mobile clinic, the TRF acts as a contact point, whereas, in addition, the clinics for ruminants and swine themselves perform visits to external establishments upon request.

Furthermore, there are 102 practitioners of all different fields of specialisation involved in the training of undergraduates, where they act as instructors during extramural work. Especially for this purpose, a specific 'logbook for extramural work' has been compiled and put into use in the winter semester of 2005/06.

In addition, a number of particularly qualified external lecturers are bound to the university by cooperation contracts in order to improve the quality of clinical training. They offer specifically intense courses very closely related to practice.

## **5.2: THE TEACHING ENVIRONMENT**

Promotion of junior scientists provides for teaching staff to attend and deliberately encourage students to pursue a scientific career. By means of broad-range promotion programmes young staff members are to be identified and supported. A 'regeneration' of the university by young and innovative ideas as well as the promotion of young scientists is seen as an essential and advanced factor of success.

The new post-doctoral programmes and professorships to be implemented will constitute a main focus for the promotion of scientific offspring and strengthening of the international network.

The promotion of scientific offspring is ensured by a mentoring system, which is built upon two pillars. On the one hand, each student enrolled at the VUW will be attended during her or his studies by a mentor coming from either the group of university professors or graduates, respectively. Thus, first-year students can approach their assigned mentor and ask questions regarding the initial phase of their studies. At the beginning questions referring to the actual job description of a veterinarian, the course and range of the study programme and the choice of studies are of prevailing interest. Through individual and personal attendance, first-year students are to receive easier access to their studies, and are able to develop an enduring and cooperative relationship with their mentors while enrolled in the study programme. This system of mentorship complements the tutoring system of the students union, which has been working successfully for a long time, with advanced students offering support and assistance to first-year students.

On the other hand, there is a mentoring system aiming at deliberate promotion of successors and young scientists. A mentor is an experienced person, who is able to counsel and support a

less experienced person in a certain field of interest. University professors (including associate professors), representatives of the various profile lines as well as experienced assistant professors, diplomats and leaders of successfully established research teams, respectively, are available to act as mentors. This kind of mentoring can be seen as a professional relationship, in which the mentor counsels and supports her or his fosterling. Furthermore, it is an individual bond in the form of a duo between the participants. The overall aim is the promotion and support of interested and committed scientific offspring through experienced members of a different non-competing unit, with an emphasis on personal counselling. In principle, this is not about counselling in work or subject-related matters *per se*. In fact, the mentors point out new perspectives, pose incentives for a goal, reinforce ideas and initiatives by young scientists, offer their judgement regarding specific questions, give advice on planned research activities, and arrange professional contacts.

Each university lives on the enthusiasm and scientific curiosity of their staff and students and on their abilities best brought into effect.

All members of the VUW should be motivated and promoted in their work position, regardless of gender, level of education, cultural, ethnical, and religious affiliation, sexual preference, parenthood, handicap or illness. One of the central issues in this respect are affirmative actions for women. On the one hand, the basic conditions for studying mothers with children should be facilitated (about 15% of the students have to take care of their children), and on the other hand, the percentage of women employed as professors or in other leading positions ought to be raised. The exchange of staff members with foreign institutions ought to be enhanced through an increased use of sabbaticals, an exchange of post-docs, the added involvement of foreign doctoral students and post-doctoral fellows in ongoing research projects and the establishment of 'vacancies' for visiting professors. In this respect it is worthwhile mentioning e.g. already existing cooperation agreements for the exchange of scientific staff with Utrecht, Zurich, Giessen and Hannover, which ought to be maintained and extended even further.

Besides that, staff members have the opportunity to receive basic and advanced training in teaching-related matters, both at the university and off campus, on a regular basis, with the university reimbursing at least part of the related expenditures. Such programmes of systematic continuing training are organised in cooperation with the Vienna University for Economics and Business Administration and the Austrian Society for Higher Education Didactics.

The teaching activities of university teaching staff is acknowledged firstly in financial terms by the allocation of a so-called performance incentive, the amount of which depends both on the results of individual evaluations and on the intensity of the teaching activities. Secondly, the quality of teaching is a factor regarded for personal career promotion. On the part of the students, there is a regular 'award' assigned either as an 'Oscar' for best performance or as a 'Detlef' for worst performances, respectively. On the basis of compulsory course evaluations, which are carried out each semester, the university administration determines the best quality courses and honours the course representative with an award of distinction.

### **5.3: THE EXAMINATION SYSTEM**

The framework for examinations is regulated by the UG 2002 and based thereon by the statutes of the VUW in the form of the study bye-laws (Annex 2, article 5 of the statutes). Furthermore, the curriculum regulates the examinations at the VUW through the requirements for admission to courses and examinations. The vice-rectorate for study affairs is subsequently responsible for the appropriate administration.

One of the main demands of the UG 2002 is the mandatory provision of at least three dates for each exam; i.e. at the beginning, in the middle, and at the end of each semester, respectively. The

Austrian legal regulations do not provide for lecture-free periods (free in order to prepare for the examinations).

In principle the types of examinations are comprehensive exams before a committee, which means that several subjects are tested at the occasion of one examination before an examination committee. According to the requirements for examinations, these can either be written or oral, if required complemented by a practical component.

The exams are as follows:

- 1 written comprehensive exam before a committee on the subjects 'Zoology' and 'Animal science'
- 1 written comprehensive exam before a committee on the subjects 'Basics of medical physics' and 'Basics of medical biochemistry'
- 1 oral comprehensive exam before a committee on the subjects 'Medical biochemistry' and 'Medical physics'
- Course examinations on the subjects 'Medical terminology', 'Medical biometry and epidemiology', 'Scientific theory', 'Botany and pharmacognosy', and 'Immunology'
- 1 oral comprehensive exam before a committee on the subjects 'Anatomy', 'Histology & embryology', and 'Physiology'
- 1 written comprehensive exam before a committee on the subjects 'Botany & Pharmacognosy', 'Animal nutrition', and 'Pharmacology & Toxicology'
- 1 written comprehensive exam before a committee on the subjects 'Animal breeding & genetics', 'General pathology', and 'Immunology'
- 1 written comprehensive exam before a committee on the subjects 'Bacteriology', 'Virology', and 'Parasitology'
- 1 written comprehensive exam before a committee on the subjects 'Food sciences & public health', and 'Animal husbandry & animal welfare'
- 1 course examination on the subject 'Propaedeutic imaging'
- 1 written exam on the subject 'Clinical propaedeutics'
- 1 oral comprehensive exam before a committee on the subject 'Clinical propaedeutics' with a practical component
- 1 written comprehensive exam before a committee on the subjects 'Organ -, metabolic- and infectious diseases', 'Emergency medicine', and 'Medicine of epidemics'
- 1 oral comprehensive exam before a committee with a practical component to test the clinical, diagnostical and therapeutical skills
- 1 written comprehensive exam before a committee on the subjects 'Regulatory framework of veterinary medicine', and 'Forensic veterinary medicine'
- 1 oral exam before a committee on the subjects chosen for specialisation

In some subjects, additional external examiners are used, who are either employed as examiners (e.g. 'Regulatory framework of veterinary medicine') or external lecturers, who have passed their habilitation ('Diagnostic imaging', and 'Surgery and ophthalmology').

The number of possible resits of exams is regulated by the statutes. Thus, during the first stage of studies, there are three resits, and in the 2<sup>nd</sup> and 3<sup>rd</sup> stage, there are 4 resits allowed. Passing of an exam is not bound to a specific time setting.

The requirements for admission to courses and examinations are regulated by the curriculum as follows:

The successful completion of the examinations of 'Zoology' and 'Animal Science' as well as 'Basics of medical physics' and 'Basics of medical biochemistry' is the prerequisite for participation in the practicals in 'Medical physics' and the practicals in 'Medical biochemistry'.

The successful completion of the practicals in 'Medical biochemistry' and practicals in 'Medical physics' is the prerequisite for admission to the examination of 'Medical biochemistry' and 'Medical physics'.

The successful completion of all courses and examinations of the first stage of studies is the prerequisite for participation in the courses of the second stage of studies.

The successful completion of the oral comprehensive examination before a committee of the subjects 'Anatomy', 'Histology & embryology', and 'Physiology' is the prerequisite for admission to the examinations of the 3<sup>rd</sup> year of studies. The prerequisite for admission to the examinations of the 2<sup>nd</sup> stage of study is the successful completion of all courses listed for the respective subject.

Apart from the subject, 'Clinical pharmacology', only 'Clinical rotations' are offered in the 9<sup>th</sup> semester. These can be performed, also during the vacation period, after passing the written comprehensive exam before a committee on the subjects 'Organ -, metabolic- and infectious diseases', 'Emergency medicine', and 'Medicine of epidemics'. In addition to the clinical rotations, a total of 5 night duties must be carried out.

During the clinical rotations, students are not allowed to participate in other courses (e.g. free electives, compulsory elective courses).

The successful completion of all courses and examinations of the second stage of studies is a prerequisite for the participation in any courses of the third stage of studies. The successful completion of the written exam on the subject 'Clinical propaedeutics' is a prerequisite for admission to the practicals in clinical propaedeutics. The successful completion of the oral comprehensive exam before a committee on the subject 'Clinical propaedeutics' with a practical component is the requirement for admission to the written comprehensive exam before a committee on the subjects 'Organ -, metabolic- and infectious diseases', 'Emergency medicine', and 'Medicine of epidemics'. The successful completion of that examination is a prerequisite for participation in the clinical rotations. The successful completion of the clinical rotations is required for the admission to the oral comprehensive exam before a committee with a practical component to assess the clinical, diagnostical and therapeutical skills, the passing of which again constitutes the requirement for participation in specialty courses. Participation in the courses of the chosen module of specialisation amounting to the required extent of hours of training is the prerequisite for admission to the oral exam before a committee on the subjects chosen for the specialisation.

#### **5.4: EVALUATION OF TEACHING**

In principle, according to § 14 of the UG 2002, Austrian universities are bound to perform measures of evaluations and quality assurance:

§ 14 (1) The universities have to build up a proper system of quality management, in order to safeguard their quality and performance.

- (2) Objects of such evaluations are all tasks and the entire range of services and activities performed by the university.
- (3) Evaluations need to be performed according to subject-specific international evaluation standards. Specific areas of the university's range of services and activities to be evaluated need to be determined in the performance agreement, as far as their evaluation is of concern only to one university
- (4) Internal evaluations carried out by the university itself need to be performed continuously in agreement with the statutes.
- (5) External evaluations need to be performed
  1. in the case of a single university upon inducement by the university senate, the rectorate, or the federal minister,



2. in the case of more than one university upon inducement by the university senates, the respective rectorate or the federal minister.
- (6) The respective universities and their organs have to make available the data and information necessary for an evaluation, and they must cooperate.
- (7) The performance of university professors, associate professors, scientific and artistic staff members active in research, cultural-, and teaching activities need to be evaluated on a regular basis, at a minimum every five years. More detailed regulations need to be written in the statutes.
- (8) The results of all evaluations have to form the basis for all decisions made by the university organs. The evaluation of teaching activities, as performed by the students, must be considered in the performance agreements.
- (9) The expenditure for evaluations initiated by the Federal minister must be covered by the Federal government.

Based on § 14 (7) of the UG 2002, the VUW's statute contains the following general guidelines for the performance, publishing and implementation of evaluations:

1. All areas of the VUW (research, teaching, animal hospital, services) have to be evaluated according to § 14 of the University Act 2002.
2. Each academic year, the course lecturers have to provide an evaluation of their courses to the vice-rector for study affairs, as performed by the attending students.

Up to the winter semester of 2004/05 these course evaluations were performed on paper (Annex 4, pp. 271 - 272), since the summer semester 2005 they have been web-based by use of the application VUW++ (first as a test only, since the winter term 05/06 in full operation). Whereas the analysis of the written evaluations had to be outsourced, the analysis of the web-based evaluation data can be executed at the VUW itself. A high response rate of evaluation data is ensured by the fact that the issuing of course credentials or confirmations is linked to the act of evaluation. Thus, about 12.000 individual feedbacks are generated every semester. The results of the evaluation process are communicated to the lecturers and also published in the annual evaluation report, which is equally made available to the general public in the IntraNet of the VUW (<http://intra.vu-wien.ac.at/sd/info1.htm#evaluierung>). Through the evaluation process, an updated individualised evaluation factor is determined for each semester, which is subsequently used as a multiplier for the calculation of the performance incentive. In addition, the lecturers receiving the best evaluations are being honoured each semester and given a premium by the university administration. An additional system for the evaluation of the entire veterinary training was first introduced in 2004 by performing a representative poll among graduates. The results of this survey have already been taken into account for curriculum amendments. In future, such surveys are planned to be performed at regular intervals and are considered an essential steering instrument for permanent quality assurance and quality increase.

#### **5.5: STUDENT WELFARE**

The campus offers various services to the students, organized by the establishment itself or by the students union:

Student restaurant; Coffee shop;

Several freely accessible rooms for studying, some of which equipped with personal computers

Biotope; Botanical garden; Roof terrace on top of the library

Access to the internet for private use at a cheaper rate

Student rates for treatments at the animal hospital

Allocation of parking space for students free of charge

Child care centre

Kennels

90 computer work stations free of charge; E-mail address free of charge

Rental of a van and a trailer

Offer of cultural activities:

    Theatre group

    VetMed Chorus

    Irish Step Dancers

Activities of the students' union representatives:

    Sports, skiing event

    Movies; Student's Bar on Thursdays

    Cultural events at a cheaper rate

Personal students' counselling (Ass. Prof. R. Skolek-Winnisch)

Student point in the study affairs office

## **2. COMMENTS**

Under the given circumstances, the quality of teaching has been evaluated as being good. The integration of external expertise provided by veterinary practitioners in teaching and examination is of great importance. For many years, students have been involved in all stages of planning and decision-making with respect to curricular considerations. This cooperation is based on a very good and constructive working atmosphere.

However, there is one problem which affects the course of studies in an absolutely negative manner and that is the optional mid-term examination, as prescribed by the UG 2002.

Training of staff members in teaching-related matters is offered; however, acceptance is still not sufficient in all cases.

## **3. SUGGESTIONS**

The above mentioned optional examination (mid-term exam) in the middle of the semester should be cancelled without substitution as far as the VUW is concerned. The legal specifications should prompt to install optional examinations at the beginning and at the end of each semester, as well as at the end of each course. An amendment of the UG 2002 is necessary to allow for this solution.

Another possibility to be reflected in future considerations is the separation of teaching and examination activities by means of introduction of an external evaluation of knowledge.

## **Chapter 6 FACILITIES AND EQUIPMENT**

### **1. FACTUAL INFORMATION**

#### **6.1.: PREMISES IN GENERAL**

The campus is located in the eastern part of Vienna called Floridsdorf, with easy access by public transportation. Bus No. 27A has a stop in front of the main entrance and offers a direct connection to the U1 metro line. On the other hand, tramline 26 goes to Floridsdorf station, and Kagran station, respectively, where a change to the metro lines U6 or U1 is possible. Either way, the campus can well be reached from the city centre within 20-35 minutes. The departments, clinics and other units are listed below and can be followed up on the enclosed map (see page 5).

In January 2004, the former institutes and clinics have been merged into the following departments:

1. Department for Natural Sciences
2. Department for Pathobiology
3. Department for Veterinary Public Health
4. Department for Farm Animals and Herd Management
5. Clinical Department for Small Animals and Horses
6. Clinical Department for Animal Breeding and Reproduction
7. Clinical Department for Diagnostic Imaging, Infectious and Laboratory Medicine

#### **Central services:**

Pharmacy

Head: Mag. Ilse Teuschl

Centre for Audiovision

Head: OR DI. Wilhelm Ziegler

Public Relations

Head: Mag. Evelyn Lengauer

Library

Head: HR Dr. Günter Olensky

International Relations Office (IRO)

Head: Dr. Ursula M. Schober

Office for Research Development and Innovation (FFI)

Controlling

Head: Mag. Peter Feigl

Human Resources

Head: Gertrud Krupka

Financial Office and Procurement

Head: Mag. Peter Feigl

Legal Office

Head: Dr. Christian Schwabl

Study Affairs Office

Head: Vice Rector A. Univ. Prof. Dr. Wolfgang Künzel

Central Computing Service (ZID)

Head: DI.Dr. Josef Jahn

Technical Maintenance

Head: Reinhard Samwald

Printing and Repro Office

Telephone Exchange and Post Office

**Other university services:**

Occupational Medicine

Dr. Claudia Greiner

Students Union

Head: Maria Guschlbauer

Deputies: Marlies Schnierer, Stephanie Schauer

Teaching and Research Farm (TRF)

Head: Dr. Werner Pohl

Animal Care Taker School (Stockmen)

Head: A. Univ. Prof. Dr. Hermann Bubna-Littitz

Animal Protection, Welfare and Veterinary Legislation

DDr. Regina Binder

**Department for Natural Sciences**

The Department for Natural Sciences was founded on 1 January 2004 and covers the subjects of Medical Biochemistry, Medical Chemistry, Medical Physics, Medical Biometry and Epidemiology, Pathophysiology, Pharmacology and Toxicology, Physiology and Aquatic Ecotoxicology. The goal of the department may be seen as counteracting the trend towards scientific specialization by extending the cooperation between the units, a necessity enforced by limited funding. From another point of view, the basic subjects have to find a way back to the roots of veterinary medicine, especially to holistic teaching and research in the fields of medical biochemistry and physics, physiology and pharmacology, broadened by biometry and environmental toxicology. The department is developing its scientific program in open discussions with the faculty, the staff and the students. In a first attempt, the lectures and teaching courses were harmonized. In providing scientific services, the department offers unique combinations to the university. The Department for Natural Sciences is situated in a single building, a first step towards supporting internal communication and a major advantage in developing and carrying out common scientific projects.

**Department for Pathobiology**

In the Department for Pathobiology, the fields of „Microbiology“ and „Fundamental Morphology and Pathology“ are represented by the following subjects: Anatomy, Bacteriology and Hygiene, Virology, Histology, Parasitology and Zoology, Pathology and Forensic Veterinary Medicine. Teaching focuses on the basics of morphology and pathology as well as infections for students of veterinary medicine, biotechnology/biomedicine, and equine sciences, respectively.

**Department for Veterinary Public Health**

This department represents five disciplines: Animal Husbandry & Animal Welfare; Nutrition; Applied Botany and Pharmacognosy; Meat Hygiene, Meat Technology & Food Science; Milk

Hygiene, Milk Technology & Food Science. The cooperation of these units allows an integrated approach towards safety and wholesomeness of food of animal origin along the production chain (“from stable to table”). This is a focus not only in research, but also for the teaching program.

#### **Department for Farm Animals and Herd Management**

The department includes the Clinic for Ruminants, the Clinic for Swine and the Clinic for Avian, Reptile and Fish Medicine. All clinics provide teaching, research and patient care or herd health management in the above-named species. Medicine of excellence at a European level for individual patients and at the herd level is offered and includes the use of a spectrum of modern veterinary techniques in diagnostics, prophylaxis and therapy. The clinics also fulfil teaching duties and support young academics in undergraduate and graduate programs.

#### **Clinical Department for Small Animals and Horses**

The department is set up basically as an Animal Hospital. Services for injured and diseased animals provide the basis for research and teaching. The department developed out of a pooling of resources of the Clinics of Internal Medicine, Surgery and Ophthalmology, Anaesthesiology and Orthopaedics. The Department offers medical excellence at a European level 24 hours a day. More than 10.000 small animal patients and 2.000 equine patients are examined and treated every year. The majority of graduates of the University of Veterinary Medicine Vienna continue their professional career by working in the disciplines taught at this Department.

#### **Clinical Department for Animal Breeding and Reproduction**

The department developed out of a pooling of resources of the Clinic for Obstetrics, Gynaecology and Andrology, the Centre for Artificial Insemination and Embryo Transfer, Animal Breeding and Genetics, Biotechnology in Animal Production (IFA Tulln), and Laboratory Animal Science.

#### **Clinical Department for Diagnostic Imaging, Infectious and Laboratory Medicine**

The department includes diagnostic imaging (with radiology and sonography as well as computer tomography and magnetic resonance tomography), clinical virology, clinical laboratory medicine, and clinical immunology. The manifold diagnostic services offered provide the basis for both research on diagnostic issues and the raw material and clinical cases for teaching. This guarantees modern and practically oriented training. As many synergies as possible are taken advantage of within the department in order to ensure efficient use of staff and equipment and maximum results for research, teaching and diagnostic services.

#### **Research Institutes**

##### **Research Institute of Wildlife Ecology**

The main objective of the Research Institute of Wildlife Ecology is the study of the needs and behaviour of wild animals in ecological contexts in order to create a scientific basis for efficient conservation programs and environmentally sound agriculture, forestry, hunting and landscape use. The Institute carries out long-term, interdisciplinary and cross-border research at individual, population and ecosystem levels. It applies different methods from simple observation to chemical analyses, molecular biology and mathematical models. This form of research requires a high level of interdisciplinary work, realized by employing biologists, chemists, forestry scientists, engineers, mathematicians and veterinarians collaborating in 8 working groups: ‘Ecology, wildlife management, and conservation’, ‘physiology’, ‘ethology’, ‘genetics’, ‘ecological chemistry and toxicology’, ‘veterinary medicine’, ‘biomedical engineering and biotelemetry’, and ‘mathematical modelling’ including the computer centre.

The institute resides in a spacious building with adequately equipped offices and laboratories located in the 16<sup>th</sup> district of Vienna on the edge of the Wienerwald (Viennese woods). Right adjacent to the building is a research enclosure of 45 ha available for studies on wild animals kept under close to natural conditions. Furthermore, field studies are conducted in natural habitats and in landscapes suitable for the questions under investigation. Examples of this include studies on the decline of European brown hare populations in intensively used agricultural areas of Eastern Austria or the development of practical concepts and solutions for the conflict of interests of forestry, tourism and wild animals in alpine areas. Teaching at the Institute also reflects its interdisciplinary focus. Lectures are attended not only by veterinary students, but also by students of biology, ecology, forestry and landscape design. Accordingly, graduate students come from a wide variety of universities and countries. Basic financing for the Research Institute of Wildlife Ecology comes in two thirds from the total sum of the university budget from the Republic of Austria and in one third from the Society to Support the Research Institute of Wildlife Ecology. In addition, third party funding available for specific research projects accounts for about 25% of the annual institute budget. The institute employs a long-term average of 35 staff members, of which 10 are directly employed by the University of Veterinary Medicine. The remaining staff members are employed by the Society, 16 of which have permanent contracts and the rest project-specific contracts.

#### **Research Institute of Biochemical Pharmacology and Molecular Toxicology**

The institute has 3 research projects supported by the Austrian Science Fund. The first one is "Carcinogenesis through fat-rich food". The second project is "Mitochondrial oxygen radical formation" and the third project deals with "New antioxidants and their quinoide metabolites".

#### **Research Institute of Virology and Biomedicine**

More than 65 employees from 15 different nations are currently working at the institute in the areas of research, teaching and administration. Research is carried out in an area of more than 2.320 m<sup>2</sup>, with state-of-the-art equipment including three biosafety level 2 laboratory suites, each comprising a central molecular biology laboratory, a bacteriology laboratory and a cell culture lab. Additionally available are two biosafety level three laboratory suites, each comprising two cell culture laboratories and a molecular biology laboratory. Animal housing is done under S3 and SPF-(Specific Pathogen Free) conditions. Biological material destined for use in animal or human medical trials can be produced in the Good laboratory Practice (GLP) facility of the Institute. The majority of staff is employed at the Research Institute of Virology and Biomedicine. Being spatially and thematically closely associated, the staff of Virology covers - despite its low personnel level - a broad variety of duties in teaching, service and research. The Research Institute of Virology and Biomedicine focuses on two research areas: Basic virus research (quantitative virology, molecular phylogeny, viral gene regulation, host-virus interactions) and applied virus research (retroviral vector design, and gene therapy).

Basic research is currently limited to retroviruses. Studies relating to the regulation of viral gene expression, RNA processing and protein production, to the definition of functional domains of retroviral enzymatic proteins and to the interaction of viruses with their host cells are actively pursued. Most of this work is carried out in cell culture, but the availability of an own animal facility has allowed for questions relating to virus-host interactions and infection route to be studied in the mouse. Much of the work carried out is qualitative in nature, however, recently the ability to measure biological molecules such as RNA and DNA accurately using Taq-Man Real-time technology has allowed for the additional possibility of quantification, which is becoming increasingly important. In the light of increasing competition and the shortage of public funding, the synergy between basic research and economy has become an internationally acknowledged and successful strategy. In this respect,

the applied research groups have been very fortunate in developing a close and productive collaborative relationship with the biotechnology company AUSTRIANOVA Biotechnology GmbH. Based on the company's understanding of the principles of academic research, the institute has been able to invent and develop a gene therapeutic approach for pancreatic cancer. As the first and so far only Austrian company, Austrianova was given "Orphan Drug Status for the EU", which allows accelerated market approval of this treatment modality. Additionally, the "Christian Doppler Laboratory for Gene Therapeutic Vector Development" has been situated at the institute since January 2004. The members of this laboratory are involved in the design and development of new generations of retroviral vector systems for gene therapy.

The advent of molecular biology has opened up new possibilities for virus detection at an earlier point of time and at a more sensitive level than previously possible. In addition, whereas many of the classical methods involve a step in which the virus must be amplified in cell culture before testing can begin, molecular methods allow direct detection of virus in the original sample. For this reason, antigen detection is being replaced in many cases by polymerase chain reaction (PCR) detection of viral genetic information. This method is currently further developed and will be transferred to the routine diagnostic section. It has become obvious that the accurate determination of the number of viral particles present in a sample (virus load) is of increasing importance in modern virology. Numerous real-time PCR assays, which have come into use in international vaccination therapy studies, have been developed in the institute.

Undergraduate teaching of veterinary students focuses on a contemporary understanding of the principles of virology and a thorough understanding of the interactions between virus and infected cell that potentially lead to disease. Both lectures and practical courses are offered. Additionally, project-based and problem-oriented practical training is offered via participation in current research projects. Postgraduate teaching of international students from all disciplines (veterinary medicine, biology, medicine and chemistry) includes diploma theses (Masters), doctoral theses and PhD theses, followed by a comprehensive post-doctoral training programme.

For more detailed information on the departments see Annex 5, pp 273 - 294.

## **Central services**

### ***International Relations Office - IRO***

The IRO is assigned both to the vice-rectorate for study affairs and the vice-rectorate for research. There has been a strong attempt to optimise operations by use of synergies in order to cope with the ever-growing demands for internationalisation. The VUW has successfully participated in the SOCRATES/ERASMUS mobility programme since 1995. There has been a constant increase in the number of involved partner universities as well as resulting OUTGOING and INCOMING activities, both by students and teaching staff. Participation in "VetNEST", a CEEPUS Network, constitutes yet another focus. Besides that, the VUW is a member of the ASEA-UNINET, EURASIA-PACIFIC Uninet, EAEVE and the EUA. Since 2003, the IRO has also become the central contact office for international students applying for admission to regular study programmes. Being committed to service, the IRO defines itself as the central promoter of the internationalisation process which is taking place at the VUW. The IRO thus acts as a strategic as well as an operative unit dedicated to the entire university. It is developing and coordinating prospects and programmes to foster international mobility of students and staff. Furthermore, the IRO serves all University employees as a service-oriented centre for information on and coordination of international relations and cooperation possibilities. The IRO's activities and merits help to facilitate and improve access

to the international higher education area, with main emphasis put onto the clear positioning of the VUW on the map of European and international veterinary training.

***Office for Research Development and Innovation (FFI)***

Founded in 2003, the FFI is assigned to the vice-rectorate for research. In cooperation with the VETWIDI research holding Ltd., the task of the FFI is to advise and support all employees of the VUW in the fields of external funding, research cooperations, research focuses and technology transfer. Based on the UG 2002, the VUW is entitled to make use of inventions made by members of the University. Financially and consultatory supported by the Uni:Invent program, an initiative of the Federal Ministry for Education, Science and Culture and the Federal Ministry of Economics and Labour, the FFI assesses all inventions and in case the University decides to grant a patent, develops an optimal commercialisation strategy in close cooperation with the inventors. The VUW covers all costs for Intellectual Property Rights (IPR) protection; there is no financial risk for the inventor. Thus, the expertise of the University can be successfully marketed, adding value to the scientists, the University and the community at large. A prerequisite for a climate beneficial for long-term innovation at the VUW is to solicit funding and to cooperate with industry. Therefore, the FFI informs as to available funds and offers project management and consultant services on contractual matters on a regular basis. The introduction of research focuses, so called "profile lines", in 2002 created an internal research subsidy program for innovative ideas from junior as well as highly-qualified researchers, administered by the FFI. Subsidies from the City of Vienna (Transkoop), LISA-Vienna region, the governmental program Uni:Invent and internal funding by the University together finance the FFI. The FFI aims to join the University with external financiers, research agencies and cooperation partners. Altogether, the FFI plays an important role in restructuring of research as well as technology transfer at the VUW.

***Documentation and Information Centre for Animal Welfare and Veterinary Law***

Animal welfare is becoming increasingly important in the public awareness, in scientific research and in the legal system. In food animals, welfare also means securing animal health, which shows the central role of animal welfare in quality control and consumer safety. The Documentation and Information Centre for Animal Welfare and Veterinary Law was founded in 2002 as a contact address for legal aspects of animal welfare. It is open to all university members, students, veterinarians, government officers, animal owners and all others with questions on animal welfare. An important aim of the centre is to ensure that the interdisciplinary nature of animal welfare is acknowledged and to support a constructive cooperation between jurisprudence and scientists in the interest of scientifically-based animal welfare. Questions of welfare, animal experiments, animal transport and veterinary law are answered in cooperation with experts and published as statements or articles in scientific publications or presented at seminars. A national animal welfare law has taken effect in Austria on 1 January 2005, thus replacing the former provincial laws. The Centre coordinated preparations for this law at the VUW and submitted statements and expert opinions that contributed to this law. In future, the Centre will continue to play a part in the development and evaluation of the new law. The transfer of knowledge is also a central aim of the Centre. Teaching takes place in conjunction with Animal Husbandry and Animal Welfare as part of the training as a Specialist in Animal Husbandry and Animal Welfare. The Centre is a step towards influencing (future) veterinarians in the sense of a responsibility for the animals in their care.



**6.2: PREMISES USED FOR CLINICS AND HOSPITALISATION**

Places for hospitalised animals									Places for isolation		
Cattle	Horse	Small ruminants	Swine	Dog	Cat	Birds	Reptiles and Amphibians	New World Camelidae	Small Animals	Farm animals & horses	Birds
50	97	60	48	68	80	60	27	5	50	4	34
<b>495</b>									<b>88</b>		

**6.3: PREMISES FOR ANIMALS****Birds:**

Pigeons are housed in two outdoor aviaries which are closed at the side panels and partly roofed.

Budgerigars are kept in two similar outdoor aviaries with connected heatable indoor shelters. Aviaries for the birds used for teaching purposes are located in another building, separated from the patients of the clinic.

Poultry is kept indoors in small pens on deep litter or in cages.

**Ruminants:**

At the Clinic for Ruminants cows for teaching purposes (for students) are housed in tie-stalls (long standing) with intensive straw bedding separated from patients (housing of patients is similar).

Calves, sheep and goats are kept in individual or group boxes. During the summertime, small ruminants are kept in outdoor or on pasture at the TRF.

South American Camelidae are kept in an outdoor with an open fronted shelter.

**Swine:**

Pigs are kept indoors in pens of three different housing units.

60 - 70 animals per year are used for practical training purposes. These animals spend about 4-5 months at the clinic and are strictly separated from the patients. Patients are used for teaching and practical training activities as well.

**Horses:**

Horses for teaching of internal medicine are kept on the paddocks all year long, depending on the weather conditions.

At the clinic for surgery, patients as well as animals for teaching purposes are kept in stables, in single boxes plus daily paddock walk. At the clinic for orthopaedics, there is no strict separation between patients and horses for teaching, but whenever possible, animals for teaching are kept separately from other orthopaedic cases.

All horses for teaching are transferred to the TRF during the summer months as a contribution to animal welfare.

**Small animals:**

The dogs are kept in rooms with kennels which lead directly to the roofed pens.

For teaching, there are twelve Beagle dogs in two groups, one group at the clinic for small animals and horses and the other at the clinic for surgery.

Husbandry conditions of the animals for teaching are similar at both units: one room with sleeping areas, feeding places and water plus outdoor kennels. There is no contact to patients.

Clinic for Obstetrics, Gynaecology and Andrology and Centre for Artificial Insemination and Embryo Transfer:

The male animals of the EU-approved Centre for Artificial Insemination and Embryo Transfer are kept in accordance with relevant decisions and directives of the European Union authorities. Thus, the male animals are kept apart from any other animals with undefined health status (patients as well as university animals). In addition to separate stables with loose boxes, paddocks are available for these animals. Stallions are regularly exercised in the university riding arena.

Department 6 keeps a limited number of its own animals (dogs, ponies, cattle) for introductory practical training. These animals are kept in groups (dogs, ponies) or single loose boxes and have regular access to outdoor paddocks. They are kept in separate stable units separated from client animals. The number of stable units used can be adapted depending on the teaching needs and the season (note: horses and sheep are seasonal breeders).

There is no exchange of animals for teaching between the Department 6 and the TRF. However, part of the practical training in cattle, pig and sheep reproduction is done at the TRF. These animals thus do not need to be kept at the Vienna campus.

#### 6.4: PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

**Table: 6.4.1. Premises for lecturing**

<b>Room number</b>	<b>Rom-Name</b>	<b>Size (m<sup>2</sup>)</b>	<b>Description</b>	<b>Seats</b>
FA05G02	A	368.94	Lecture theatre with fixed seats	360
FA05G16	B	274.45	Lecture theatre with fixed seats	245
AE06B01	C	199.33	Lecture theatre with fixed seats	161
GA06X49	D	106.31	Lecture theatre with fixed seats	74
OA06Y03	E	251.27	Lecture theatre with fixed seats	164
IC10P10	F	216.88	Room with fixed seats for special teaching purposes and practical training	152
LA06Y03	G	251.27	Lecture theatre with fixed seats	164
HA06X05	M	106.31	Lecture theatre with fixed seats	74
<b>Total</b>	<b>1.394 places</b>			

All lecture rooms are equipped with overhead projectors, facilities for double slide projection, video tape projection and video beamer as well as public address system. Meanwhile, most lectures are given on the basis of PowerPoint projections.

**Table: 6.4.2. Premises for group work**

<b>Department 1</b>				
<b>Room number</b>	<b>Name</b>	<b>Size (m<sup>2</sup>)</b>	<b>Description</b>	<b>Seats</b>
HA06P49	Seminar room	38.18	Lecture room without fixed seats	20
HA07P29	Small Library	48.18	Library room	16
HA09P39	Hall	38.39	Meeting room	20
HA09P40	Small Library	38.37	Library room	15
HA09B37	Laboratory for practicals	57.20	Physical Laboratory	14
HA09B43	Laboratory for practicals	57.94	Physical Laboratory	14
<b>Total</b>	<b>99 places</b>			
<b>Department 2</b>				
AA06P17	Seminar room	28.67	Library room	12
AA08B09	Multipurpose room	38.42	Library room	14
AC05P00	Museum	117.49	Exhibition place	5
EA05B00	Course and practical room	66.41	Lecture room without fixed seats	35
EA06N03	Self study room	74.50	Lecture room without fixed seats	40
GA06B00	Room for practicals	154.55	Lecture room without fixed seats	54
GA06P06	Seminar room	78.44	Lecture room without fixed seats	24
<b>Total</b>	<b>184 places</b>			
<b>Department 3</b>				
GA09B00	Room for practicals	125.90	Lecture room without fixed seats	15
GA05N23	Seminar room	61.30	Lecture room without fixed seats	31
GA07B06	Laboratory for practicals	69.08	Lecture room without fixed seats	24
GA07P06	Microbiology training laboratory	48.18	Laboratory for chemistry and bacteriology	24
GA09P11	Library	18.86		10
<b>Total</b>	<b>104 places</b>			
<b>Department 4</b>				
RA07B22	Seminar room	29.58	Lecture room without fixed seats	15
MA06N03	Seminar room	59.01	Lecture room without fixed seats	26
<b>Total</b>	<b>41 places</b>			
<b>Department 5</b>				
NC05A07	Place for demonstration	118.25	Corridor, lobby room	24
ND05B11	Place for demonstration	92.14	Corridor, lobby room	20
KA05P11	Course and practical room	79.93	Lecture room without fixed seats	40
KA06B13	Library/Seminar room	30.00	Seminar room without fixed seats	20
<b>Total</b>	<b>104 places</b>			
<b>Department 6</b>				
NA07B00	Seminar room	121.46	Lecture room without fixed seats	30
IA06B00	Seminar room	39.33	Lecture room without fixed seats	20
IC05C00	Seminar room	54.83	Lecture room without fixed seats	20
<b>Total</b>	<b>70 places</b>			
<b>Department 7</b>				
SA05B28	Seminar room	52.83	Lecture room without fixed seats	30
<b>Total</b>	<b>30 places</b>			

**Table 6.4.3: Premises for practical work**

<b>Department 1</b>				
<b>Room number</b>	<b>Name</b>	<b>Size (m<sup>2</sup>)</b>	<b>Description</b>	<b>Places</b>
HA06B51	Laboratory for practicals	165.61	Chemical laboratory	36
HA07B53	Laboratory for practicals	124.06	Lecture room without fixed seats	30
HA09B37	Laboratory for practicals	57.20	Physical laboratory	14
HA09B43	Laboratory for practicals	57.94	Physical laboratory	14
HA0939	Laboratory for practicals	13.67	Spectroscopy laboratory	2
HA0941	Laboratory for practicals	16.30	Laboratory for X-Raying	2
HA0943	Laboratory for practicals	11.04	Dark chamber for development of radiographs	2
HA09B51	Course and practical room	156.42	Course room equipped with 28 PC's	28
<b>Total</b>	<b>128 places</b>			
<b>Department 2</b>				
AA06B23	Room for practicals and demonstrations	35.10	Diagnostic laboratory	4
AA08M13	Room for practicals	184.00	Lecture room without fixed seats	64
AA05P19	Room for practicals and demonstrations	28.67	Diagnostic laboratory	4
AC05M15	Course room	176.42	Lecture room without fixed seats	80
AD05B09	Dissection room	185.26	Room with special medical equipments	4
AD05M09	Demonstration room	186.37	Lecture room without fixed seats	30
EA05M10	Room for practicals	211.40	Dissection room without fixed seats	108
EA06G21	Room for practicals	118.08	Dissection room without fixed seats	45
<b>Total</b>	<b>339 places</b>			
<b>Department 3</b>				
GA05P17	Laboratory for practicals	57.91	Lecture room without fixed seats	15
GA07B00	Laboratory for practicals	95.20	Lecture room without fixed seats	40
GA07P17	Seminar room	38.18	Lecture room without fixed seats	18
GA08B00	Room for practicals	126.06	Lecture room without fixed seats	58
GA08P06	Laboratory for practicals	48.18	Lecture room without fixed seats	12
GA08P11	Laboratory for practicals	38.40	Lecture room without fixed seats	5
GA08P17	Electrophoresis Laboratory	18.88	Laboratory for chemistry and bacteriology	2
GA08G09	Preparation room	13.42	Workspace - other	
GA08G11	Preparation room	13.67	Workspace - other	
<b>Total</b>	<b>&gt; 150 places</b>			
<b>Department 4</b>				
RA05P09*	Treatment room	117.99	Room with special medical equipment	5
RA05B13	Dissection and teaching room	38.00	Room with equipment to perform sectioning of fish and to keep fish	7
RA05P17*	Dissection and teaching room	*	Room with equipment to perform dissectioning of birds	7

MB05B11	Place for demonstration	92.14	Corridor, lobby room	2
<b>Total</b>	<b>21 places</b>			
<b>Department 5</b>				
NA06B13	Museum	38.42	Room for expositions	16
NA06P05	Room for practicals	38.42	OP preparation room	16
NA06P11	Room for practicals	38.37	Dentistry room for students	16
NC05A00	Operating room	78.89	OP Septic room	8
NC05A23				12
NC05K13	Room for practicals	78.03	Lecture room without fixed seats	12
ND05D09	vestibule stable horses	8.91	hallway	20
ND05D10				24
ND05D13	vestibule stable horses	8.91	Stable hospital	12
ND05K09	vestibule stable horses	8.91	Stable hospital	20
ND05K13	vestibule colic horses stable	8.91	Stable hospital	8
PA05M03	Room for practicals	149.08	Lecture room without fixed seats	35
PB05P10	Treatment room	62.48	Room with special medical equipments	
PB05T10	Treatment room	65.06	Room with special medical equipments	
KA05B11	Examination room	83.72	Room with special medical equipments	2
KA05B08	Examination room	26.31	Room with special medical equipments	1
KC05A27	Examination room	24.32	Instruction room without fixed seats	2
KC05N07	Examination room	37.00	Instruction room without fixed seats	2
<b>Total</b>	<b>&gt; 206 places</b>			
<b>Department 6 **</b>				
IA05P06	Small Animal Reproduction, General Examination and Treatment room	35.10	Examination and Treatment Room	
IA05P03	Small Animal Andrology, Examination and Treatment Room	33.07	Examination and Treatment Room	
IA05P14	Small Animal Reproduction, Ultrasound Room	22.15	Examination Room	
IA05B11	Small Animal Reproduction, Operating Room I	27.96	Operating Room	
IA05B18	Small Animal Reproduction, Operating Room II	28.91	Operating Room	
IA05P11	Small Animal Reproduction, Recovery / Close Observation (Whelping Room)	28.56	Recovery and Close Observation Room	
IA05U21	Large Animal Reproduction, Examination Room	**	Examination and Treatment Room	
ID05M01	Large Animal Reproduction, Isolation Examination Room	12.47	Semen	

IC05B05	Large Animal Semen Collection, Examination and Treatment Room for non-certified Animals	121.83	Examination, Semen Collection and Treatment Room	
IC05B20	Large Animal Semen Collection Room for EU-certified Animals	121.82	Semen Collection Room	
IC05C24	Semen Analysis Laboratory	27.78	Laboratory	
IC05D18	Semen Cryopreservation Laboratory	**	Laboratory	
IA07B13	Embryo Laboratory	18.86	Laboratory	
<b>Total</b>	<b>min. 26 places</b>			
<b>Department 7</b>				
SA05N29	Ultrasound room	40.84	diagnostic ultrasound	15
<b>Total</b>	<b>15 places</b>			

\* These rooms were newly established after reconstruction and official labelling and dimensions are not available.

#### \*\* Department 6

There are no specific rooms used only for practical work with students. Practical training of students is done in the facilities of the Clinic for Obstetrics, Gynaecology and Andrology and the Centre for Artificial Insemination and Embryo Transfer. The size of the rooms is large enough to accommodate groups of 4 to 6 students in addition to faculty members, staff and technicians. There is no fixed number of “student places” in these rooms (e.g. semen collection room, operating room etc.).

### Health and safety measures

In general, the following measures are taken to ensure that practical and clinical training is held as safely as possible:

- Students are instructed repeatedly in how to handle hazardous and/or infectious material, personal hygiene, handling of dangerous patients and other safety instructions. Instructions are given prior to the referring course in any case. In some units students have to sign the safety instructions.
- Eating, drinking and pets are forbidden.
- While working practically, students are supervised by trained academic or technical personnel only.
- Everybody has to wear protective clothing (coats, gloves, etc.), when working practically.
- Washbasins, fire extinguishers, first-aid-sets, and disinfectants are available within or near all premises.
- Students are required by their teachers to properly conduct disinfection.
- Everyone handling animals has to be vaccinated against rabies.

In addition to these, there are special measures as follows:

#### Chemistry

- chemical hoods
- showers over the entrance doors
- emergency circuit breakers

- lever for gas cut-off

#### Physics

- Ionizing radiation safety:
  - Requirements according to the Law for Radiation Protection 1969 (BGBl.146/2002)
  - Dosimetry of sites and people according to the Austrian Law for Radiation Protection
  - Radiation protective clothing
  - Radiation protection dosimeter for the protection of humans
- Basic requirements for electrical safety:
  - Safety of electronic medical-technical equipment
  - ÖVE/ÖNORM EN 60601 – Series of medical electronic devices

#### Bacteriology

The teaching laboratories and course room used for practical work are classified as BSL-2 (biosafety level 2). They follow (i) good laboratory practices that ensure basic cleanliness and limit contamination, and (ii) standard safety rules for BSL-2 laboratories in order to minimize the exposure to infectious bacterial or fungal agents and thereby ensuring a safe work environment preventing laboratory infections. The major precautions include:

- Effective procedures for decontaminating infectious materials or wastes, including specimens, syringes and needles, inoculated media, bacterial and fungal cultures; glassware, instruments and laboratory surfaces must be in place and be practised without compromise. Approved disinfectants are applied to laboratory surfaces for decontaminating spilled infectious materials and after each course. All potentially infectious waste must be autoclaved.
- All pipetting must be done with mechanical pipetting devices.

#### Food hygiene

- In practical training with undergraduate students, no pathogenic bacteria are used
- Laboratories for undergraduate students comply with class L III specifications; equipped with disinfectants, eye wash etc.

#### Clinic for poultry, pet birds, reptile and fish medicine

- All dangerous areas in the clinic are signposted.

#### Clinic for obstetrics, gynaecology, and andrology

- The premises of the Clinic meets all safety and hygiene requirements of council directive 92/65.
- The premises allow safe and correct stabling of large animals, including bulls and stallions.

#### Clinic for diagnostic imaging

- Radiation protection measures according to the European Guidelines on Radiation Protection

### 6.5: DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

#### Diagnostic laboratories

##### Central laboratory

The Central Laboratory was established in 1999 as a shared facility of then seven clinics. Last but not least, it was also a reaction to the suggestions from the EAEVE visiting team in 1997.

Today, this central unit is part of the Clinical Department for Diagnostic Imaging, Infectious and Laboratory Medicine.

The central laboratory provides laboratory analyses in the main areas of veterinary clinical pathology, such as haematology, clinical biochemistry including endocrinology and cytology for the clinics and research units of the VUW (approximately 80%) as well as for outside practitioners, industry and off-campus research institutions (approximately 20%).

In January 2005, the Central Laboratory was fully approved as an ECVCP (European College of Veterinary Clinical Pathology) training laboratory by the Colleges Laboratory Standards Committee, and has been certified through ISO 9001:2000 since 2004.

In the near future new technologies of tumour diagnosis will be introduced in cooperation with other units.

In addition to the central laboratory, some units have specialized laboratories for their special demands:

#### Clinic for ruminants

- blood gas analyzer, blood cells-, chemistry and differential blood cell count
- PCR-laboratory, centrifuge, serology
- laboratory for bacteriological milk examinations, microscope

#### Clinic for swine

Laboratories for ELISA (serology, mycotoxins), PCR

#### Clinic for avian, reptile and fish medicine

There are two laboratory areas on two different levels of the building

- A) S2 category laboratory for molecular biology, virology, and cell culture
- B) Laboratories for basic bacteriology, serology, fish pathology, and water testing

#### Clinical Virology

A broad range of methods is applied for detection of virus, antigen, viral nucleic acids, and antibodies against viral pathogens. Conventional methods like virus isolation (cell culture, embryonated eggs), immunofluorescence, haemagglutination and many others are used as well as molecular methods, like polymerase chain reaction and sequencing. Virus infections of farm and pet animals are investigated including fish and bee viruses. Special attention is paid to virus infection with zoonotic potential, where animal as well as human samples are investigated. Ten S 2 category laboratories, some of them with special equipment for cell culture (2 rooms) and molecular methods (5 rooms) are available. An important input is gained from these services for teaching and research activities.

The diagnostic services are offered for internal as well as external customers.

#### Bacteriology, Mycology and Hygiene

The unit of Bacteriology, Mycology and Hygiene has long-standing experience in detection and identification of bacterial and fungal agents at international quality standards and is internationally reputed for its expertise in mycoplasma, environmental microbiology and bacterial taxonomy.

It offers state-of-the-art research and diagnostic services in the field of clinical bacteriology and mycology, as well as hygiene, with particular specialization in the following areas:

- ear and skin infections
- infections of the genital tract
- mycoplasma infections
- quality and sterility control



## Parasitology

Veterinary Diagnostic Services for external (practitioners, companies, public health institutions, private persons) and internal (VUW) customers are provided in the following areas:

- standard examinations of faecal and urine samples for the diagnosis of protozoa and helminths and standard examination of skin samples for ectoparasites from livestock, wildlife, companion and zoo animals
- determination of isolated (putative) parasite specimen
- examinations of blood smears for haemoparasites and rickettsiae
- serological examinations of blood serum for infections with various protozoa including *Leishmania*, *Babesia*, *Toxoplasma*, *Neospora*, and *Encephalitozoon* as well as for Sarcoptes-infections
- PCR-based detection and differentiation of the above mentioned protozoa as well as *Eperythrozoon* (*Mycoplasma*) *suis*, and *Anaplasma phagocytophilum*

Furthermore, special services are provided for efficacy testing of antiparasitic drugs and disinfectants *in vitro* and *in vivo*.

## Pathology

The following facilities for diagnostic pathology are in use:

- two autopsy rooms are available for post-mortem examination
- for histopathological examinations, several laboratories are available for preparation of organ samples and biopsy of specimens, tissue embedding, cutting, and routine staining procedures
- special facilities exist for immunohistochemistry and molecular pathology where *in situ*-hybridization and polymerase chain reaction are done

In addition, facilities for transmission, electron microscopy and computer-assisted morphometry have been installed.

## Central clinical support services

### Diagnostic Imaging

- radiology
- ultrasound
- computer tomography, magnetic resonance imaging

Imaging facilities available as referral service for practicing veterinarians (appointments mandatory) as well as in-patient referrals from hospital clinics; facilities arranged in separate rooms with radiologist in charge.

Clinic services are available from Monday to Thursday 8 a.m. to 5 p.m., Friday from 8 a.m. to 1 p.m.

### Anaesthesiology and Perioperative Intensive Care

The clinic provides anaesthesia service including off-hours duty for the other clinics and covers both large and small animals with a caseload of about 2,500-3,000 anaesthesias per year. The clinic is an internationally recognised training centre for the European College of Veterinary Anaesthesia.

Undergraduate teaching is based on the course "Basics of Anaesthesiology", but is supplemented with smaller classes, which cover many more specialised aspects of veterinary anaesthesia.

These include:

- special anaesthesia techniques

- anaesthesia of birds and exotics
- anaesthesia of laboratory animals
- aspects of pain management
- emergency and critical care, etc

Research addresses some clinical problems of veterinary anaesthetic practice, but mainly focuses on cardiopulmonary disturbances during anaesthesia.

#### Pathology

A comprehensive diagnostic service is provided for the VUW as well as for community-based veterinarians. The services include:

- post-mortem examinations
- examinations of organ samples and biopsy specimens by light microscopy, enzyme, and immunohistochemistry, *in situ*-hybridization, polymerase chain reaction, transmission electron microscopy, as well as morphometry

The high acceptance of these services provides sufficient numbers of necropsies, organ and biopsy specimens for teaching and applied research projects.

#### Animal breeding and genetics

The unit provides:

##### A) Molecular genetic expertise in veterinary forensics

DNA analysis is now commonly considered as admissible evidence in court proceedings. In veterinary medicine, forensic questions are often quite varied and require specific tools for each case. In many instances, a special analytical challenge is caused by poor material, both qualitatively and/or quantitatively. These cases concern either

- the species identification of an unknown biological trace material (qualitatively)
- the verification of a defined species within a biological trace material (qualitatively/quantitatively)
- the evidence of identity between a biological trace material and an individual control animal

Methods dealing with these cases depend on the individual case, but ought to include the following molecular techniques:

- sequencing analysis
- real-time-PCR or
- micro satellite profiling

##### B) Mouse genotyping

In concerted action with the Austrian Centre of Biomodelling and Transgenetics, a DNA marker panel in laboratory mice is compiled. This methodology will be offered in "genome scanning", and "speed congenics" services.

#### Biochemistry

- pregnancy confirmation in mares (about 600 samples per year) and
- reproductive monitoring in zoo animals (rhinoceroses, okapis etc) by faecal steroid analysis

#### Pharmacy

Acquisition and storage of drugs, chemicals, diagnostic kits

Wound dressing, disposables, wrapping material and packages

Preparation of drugs and reagents, analysis of drugs; information about drugs

Recycling of packages, disposal of expired drugs

## 6.6: SLAUGHTERHOUSE FACILITIES

### Slaughterhouse Facilities

Access to four slaughterhouse facilities: Two slaughterhouses are located west, one north, and one east of Vienna. Distances are between 35 and 60 km from Vienna.

- Unit 1 (Gewerbering, 2020 Hollabrunn): Cattle/pig, EU-approval; Activities of the students: Visitation of pig slaughter; meat inspection of carcass, ante-mortem inspection, carcass surface sampling (EU decision 2001/471)
- Unit 2 (Schloßstr. 3, 3062 Kirchstetten): Cattle/pig, EU-approval; Activities of the students: Visitation of pig slaughter; meat inspection of carcass, also practical meat inspection of thoracic inner organs and liver, ante-mortem inspection, carcass surface sampling (EU decision 2001/471)
- Unit 3 (Bundesversuchswirtschaften, 2460 Bruckneudorf): Cattle/pig; Activities of the students: Visitation of cattle slaughter; full course of meat inspection; ante-mortem inspection, carcass surface sampling (EU decision 2001/471)
- Unit 4 (Rotheau 70, 3153 Eschenau): Cattle, EU-approval; Activities of the students: Visitation of cattle slaughter; meat inspection of carcass, also practical meat inspection of thoracic inner organs and liver, ante-mortem inspection, carcass surface sampling (EU decision 2001/471)

Each student attends one cattle (unit 3 or 4) and one pig slaughter (unit 1 or 2) excursion. Group size per excursion: seven students, one teacher. Transportation costs (minivans) are covered by the excursion budget of the department.

Schedule:

6.00 a.m.: Start in Vienna, transportation (about 60 min.) in a small bus (1 driver, 1 teacher, 7 students) to the slaughterhouse

Teaching at the slaughterhouse:

About 45 min. for ante mortem inspection and stunning

About 45 min. for hygiene of the slaughter process

About 90 min. for meat inspection

About 60 min. of transportation back to Vienna

## 6.7: FOODSTUFF PROCESSING UNIT

### Foodstuff Processing Unit

For the uniform part of the course:

Visitation of a meat cutting and packing plant (visual inspection and palpation of pig inner organs and carcasses)

For focal point study ("Specialisation"):

Visitations of two meat processing plants in Vienna (Baumgasse 66, 1030; Laxenburgerstr. 256, 1230), one pet food producing company about 30 km east of Vienna (Industriestraße 20, 2460 Bruck an der Leitha) and one game carcass processing unit (Alte Poststr. 15, 3341 Ybbsitz) for cutting and deboning of game.

All these units are EU-approved.

## 6.8: WASTE MANAGEMENT

### Waste Management

In Austria the waste management is regulated by law (Ö-Norm S2100 and Ö-Norm S2104). Waste disposal at the VUW, is managed by the technical services of the university. There are detailed SOP's (221 pages) for waste management. Major points are:

- Non-infectious and non-hazardous waste is collected separately from plastic, glass, paper, and residual waste. The communal service provider transports these kinds of waste
- Special items like batteries or fluid waste are collected separately, labelled accordingly and disposed by a special company
- Dangerous or toxic biological waste will be disposed in special black bins. These bins will be moved to a central collecting point on the campus
- Genetically modified organisms (GMO's) will be autoclaved before disposing, according to the relevant Standard Operating Procedure
- The rest of the biological waste will be disposed in orange bags (sacks for hospital waste). These bags will be disposed in special containers for hospital waste
- Non-hazardous stable manure is collected in containers of 23 to 35 m<sup>3</sup>, removed and used as fertiliser
- Cadavers and carcasses are collected in cadaver bins. Once a day these bins are removed to the central collecting point for cadavers on the campus (Pathology)
- At the unit of Pathology, special waste thermo disinfection is shared with the unit of Virology in the buildings AC and AD. Cadavers, organs and all other biological material remaining from work in the autopsy room as well as from all units at the campus are disposed in a large container situated in a cold-storage house. The container is taken to the animal carcass disposal plant (Tierkörperverwertungsanlage) once a week
- Wastewater is pre-cleaned by an in-house sewage plant and then dumped into the municipal sewage system

All students have to be introduced to the subject of waste management.

## 6.9: FUTURE CHANGES

### Future Changes

Recently finished projects:

Diagnostic imaging: A linear accelerator was built in 2005 and put into operation in December 2005.

Obstetrics, gynaecology and andrology: Unused pig stables have been converted into horse stables and an underused cattle surgery room was converted into a large animal semen collection room. A nearby stable unit was established for the surveillance of foaling and neonates in 2000 and is run with strong involvement of students in the clinical years. Three stables for tied housing of cattle have been converted to multi-purpose loose group stables (used mainly for keeping teaching animals or for housing research animals, depending on the current projects of the Department).

Planned projects:

At the TRF, the focus on cattle farming will be located on the premises of Kremesberg, which is why a new pen for about 100 head of cattle will be set up, along with the necessary facilities for the raising of calves. The focus on pig farming will be renewed at Medau, where an appropriate stable will be constructed for 210 breeding sows and their piglets. The former stables for cattle at Rehgras, for swine at Medau, and the stable buildings at the Haidlhof and in the Rehgras area will be adapted for adequate research projects.

Structures will be established, for both teaching and research to meet the mainstream of international scientific requirements. The research activities at the TRF will relate to the areas of animal husbandry and animal protection, reproduction and nutrition.

## **2. COMMENTS**

The adequacy of the building and of the equipment in general together with the recent changes outlined in 6.9. for undergraduate teaching is sufficient.

Anyway, ten years after moving into brand-new premises, nowadays several repairs concerning floors, doors, and windows are necessary. Especially in the stables, there is a higher degree of abrasion.

In some cases, the given structure of the campus with its 47 single buildings limits to some extent the structure of the organisation, and may in extreme cases even prevent organisational changes, which can subsequently only be accomplished by considerable financial efforts or, sometimes, not at all.

Furthermore, the use of the buildings and installations for nearly one decade in combination with very little rebuilding activities, which is typical for new constructions will lead to increasingly more frequent and costly maintenance and repair work.

## **3. SUGGESTIONS**

The availability of the unit for diagnostic imaging should be enforced to keep up with other central services of equal importance, as there is e.g. Clinic of Anaesthesiology and perioperative Intensive Care. This would directly lead to a centralization of expenditure for diagnostic imaging and therefore enhance the possibilities of investing into and promoting this discipline.

Concerning the laboratories, double tracked activities need also to be eliminated in order to raise the efficiency of the various units.

Five to seven additional places for effective isolation of patients suffering from infectious diseases are necessary.

An 'action plan', composed and published on a broad basis, for setting up a list of priorities of future maintenance and repair activities, both of buildings and of their equipment, could not only accelerate a coordinated policy of maintenance and renewal, but also lead to a mutual awareness of the problems and needs on the campus.

## Chapter 7 ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

### 1. FACTUAL INFORMATION

#### 7.1: BASIC SUBJECTS

##### **Anatomy**

For the practical work of students in the dissection courses according to the curriculum preserved specimens of cats, dogs, pigs, small and large ruminants and horses and fresh carcasses of poultry are used. The cadavers are either collected from the pathology facilities (central unit of the VUW for cadaver collection) or provided by private clinics surrounding the VUW. Carcasses of internal origin are usually fresh and first stored in refrigerators, those of external origin are usually frozen. All of them are perfused with conservation fluid and afterwards embedded in the same liquid for approximately one year at the departmental facilities. Besides complete cadavers also body parts and organs are used for practical training of students. Specimens not needed in the dissection courses are used for preparation of exhibition material of the anatomy museum and the extension and renewal of specimens for self-study purposes. These specimens are preserved either by perfusion with conservation fluid only or by impregnation with PEG (semi-dry specimens) or by plastination alternatively. These specimens are available for students in the anatomical museum and for self-study in the self-study facilities which are of impressive scale. Waste material is disposed on a regular basis together with and by the pathology facilities.

The number of animals used per year is approximately 100 cats, 180 dogs, 5 pigs, 10 cattle, 5 sheep, 4 horses, and 70 poultry.

##### **Pathology**

Table 7.1: **Number of necropsies over the past 3 years**

	Species	Number of necropsies		
		2004	2003	2002
Farm/large animals	cattle	148	247	304
	equines	170	271	166
	small ruminants	104	70	84
	pigs	471	580	379
Small/pet animals	dogs	423	463	405
	cats	502	484	455
	other pets*	301	374	404
	<b>Altogether</b>	<b>2.119</b>	<b>2.489</b>	<b>2.167</b>

\* Turtles, reptiles, ostriches, etc.

#### 7.2 ANIMAL PRODUCTION

For teaching in animal breeding, reproduction and biotechnology of reproduction of all species including production animals, the following animals are available:

- Obstetrical cases presented to the Clinic on the Vienna campus (cattle, small ruminants): approx. 50 animals
- Gynaecological cases presented to the Clinic on the Vienna Campus (housed and treated in cooperation with the Clinic for Cattle): approx. 100 animals

- cows used for introductory demonstrations at the Department: 2-3 animals
- Bulls of the Centre for Artificial Insemination and Embryo Transfer: 2-3 bulls
- Dairy cows at the TRF: approx. 80 cows
- Beef cows at the TRF: approx. 40 cows
- Sows at the TRF: approx. 65 sows
- Small ruminants at the TRF: approx. 50 animals
- for demonstration purposes and training of operations, organs (e.g. uteruses, ovaries, etc.) are taken freshly from slaughterhouses and retailers, respectively

### 7.3 FOOD HYGEINE

Ante-mortem inspection is done in all four slaughterhouse units (see 6.6).

Meat (muscle tissue), organ samples and meat products for microbiological and sensory analyses is bought in retail shops (because this is consumer food), some products are also provided by the food industry on an irregular basis.

### 7.4: CONSULTATIONS

The clinics are open throughout the year. Regular consultation hours in the entire animal hospital are between 9.00 a.m. and 1.00 p.m. on weekdays (Monday to Friday).

An exception to these opening hours is made at the Clinic for Obstetrics, Gynaecology and Andrology with consultation hours from 8.00 a.m. to 12.00 p.m. (Monday to Saturday). On appointment, cases are admitted and treated also out of regular office hours, i.e. in the afternoons and evenings.

In addition to the regular consultation hours, the emergency service is available 24 hours each day.

Table 7.4: **Total number of animals received for consultation in the past three years**

	Species	Number of patients		
		2004	2003	2002
Farm/large animals	cattle	559	766	876
	equines	2.442	2.586	2.517
	small ruminants	178	167	107
	pigs	476	638	456
	fur & wild animals	160	105	102
	other farm animals	48	22	17
	camelidae	4	4	8
	farm birds	11	14	24
Small/pet animals	dogs	12.888	11.123	8.927
	cats	4.776	4.248	3.417
	rodents	565	531	413
	rabbits	627	549	474
	wild birds	364	471	612
	pet birds	712	692	768
	exotic animals*	250	203	210
	<b>Altogether</b>	<b>24.060</b>	<b>22.119</b>	<b>18.928</b>

\* Turtles, reptiles, ostriches, etc.

## 7.5: HOSPITALISATION

Table 7.5: Patients hospitalised in the clinics in the past three years

	Species	Number of patients		
		2004 in-house	2003 in-house	2002 in-house
Farm/large animals	cattle	516	741	838
	equines	1847	1890	1.825
	small ruminants	167	156	104
	pigs	474	626	445
	other farm animals	5	2	2
	camelidae	4	4	8
	farm birds	8	6	9
Small/pet animals	dogs	1.758	1.612	1.121
	cats	1.093	1.011	725
	exotic animals*	167	137	108
	fur & wild animals	66	40	40
	rodents	117	99	61
	rabbits	171	167	113
	wild birds	336	419	543
	pet birds	423	445	411
	other small animals	8	6	2
<b>Altogether</b>	<b>7.160</b>	<b>7.361</b>	<b>6.355</b>	

\* Turtles, reptiles, ostriches, etc.

## 7.6: VEHICLES FOR ANIMAL TRANSPORT

One special emergency truck is available for transporting farm animals and horses to the university clinics from an area within 250 km of distance to the VUW, the transportation is free of charge for the client.

Obstetrics, gynaecology and andrology: Owners are expected to arrange transport of the animals themselves. This is particularly recommended for obstetrical cases, which are always emergencies and should be transported without further delay. For horses and small animals there are also commercial transport companies, which offer emergency transports 24 hours a day and usually provide an excellent service.

If requested by the animal owner, a transport vehicle of the university can be provided for cattle. The owner is charged 80 cent per kilometre. In case of a particular teaching interest, part of the transport costs may be taken over by the VUW.



### **7.7: EMERGENCY SERVICE**

#### Small animals:

The head of the Clinic of Anaesthesiology and perioperative Intensive Care coordinates the "off-hours emergency clinic" for small animals in collaboration with the Clinic for Internal Medicine and the Clinic for Surgery, which is open from 7.00 p.m. to 7.00 a.m. from Monday to Friday and 24 hours on weekends and holidays. This clinic provides full treatment of emergency small animal cases including surgery, reanimation, laboratory examinations, intensive care and medical imaging. The clinic is run by one senior and one junior clinician assisted by a technician and one or two students. There is also on-call back-up service for extra surgical or internal expertise. Hospitalisation in this clinic is for one night only, patients being transferred to the appropriate day clinic around 8.00 a.m.

#### Horses:

The clinical services in the field of internal medicine and surgery in small animals and horses are open for emergencies 24 hours a day, i.e. 365 days per year.

#### Swine:

The clinic operates on-call duty 24 hours a day. Within 30 minutes a veterinarian can be at the clinic to treat cases of emergency (mostly minipigs from private owners). Animal keepers are on duty around the clock in order to house animals until the diagnostics can be done together with students.

#### Obstetrics, gynaecology and andrology:

Emergencies and hospitalised animals are treated 24-hours a day, 7 days per week. One senior student or intern and one animal keeper/nurse are always present at the clinic. The clinician on duty is present if needed and can be called in by the student or intern at any time and is available at the clinic within 20 minutes. A senior clinician with qualification as Diplomate in Animal Reproduction is always available as backup.

In general, the Clinic of Anaesthesiology and perioperative Intensive Care offers a 24 hours service in anaesthesia and perioperative intensive care for the other clinics, seven days a week. The service is thus also available for off-hours emergencies and covers both large and small animals and can call in - if required - one or two experienced veterinary anaesthetists.

### **7.8: MOBILE CLINIC**

The possibilities of the campus-based mobile clinic are used within the scope of activities of the department for farm animals and herd management. For this purpose and in order to take the students to external sites, the institution operates a special vehicle.

#### Clinic for swine:

More than 70 visits to external sites (problem cases of herd health management) are performed per year, with 2-3 students (from elective courses or the module of specialisation) attending. These site visits are always only carried out on request by the veterinarian in charge. The only costs to be paid are for diagnostics, while travel and other expenses are covered by teaching funds. As a result of such a site visit and composed with assistance by the students, there is a site evaluation protocol including a diagnosis, a proposed therapy, and /or measures of prophylaxis, respectively. The therapy is conducted by the veterinarian in charge, sometimes with the support of the participating students.

#### Clinic for ruminants:

The clinic annually visits about 130 problem herds of cattle or small ruminants together with the practitioner in charge of the farms. There the staff members work out solutions together with students, who are in practical training. Students are always welcome to take part in all service and research activities of the clinic for ruminants.

Since November 2005, an additional veterinarian has been employed to work at the TRF. He is in charge of taking students being trained at the TRF to external sites more frequently. Again this is done in cooperation with the veterinarians in charge at the various sites, in order to avoid competition with free-lance veterinarians.

#### 7.9: OTHER INFORMATION

The university has a legal obligation – not least for practical teaching – to offer the services of an animal hospital.

The hospital structure according to animal species on the one hand, but also the areas of specialisation within individual animal species, brings about the advantage of a highly specialised referral clinic, but may – on the other hand – lead to a lack of ‚critical mass‘ which would contribute to continuous development and extension.

With the exception of the clinics for ruminants and for swine, which are merely referral clinics, the patient owners can make use of the services of the animal hospital after registration, however, without prior referral by a veterinarian.

Species	Percentage of referrals
Dogs	22
Cats	20
Horses	44
Rodents	8
Lagomorpha	15
Exotic animals	10
Ruminants, swine	referrals only

In case of referral of a patient by a veterinarian, the findings and the diagnosis, respectively, are sent to that veterinarian. Further treatment should be carried out by the responsible veterinarian, unless it consists of special therapies or operations.

The costs for the services of the animal hospital are fixed in the scale of fees which is based on the tariffs of the veterinary association and decided by the university senate (<http://www.vu-wien.ac.at/zv/info/mitteilungsblatt/Studienjahr0506/20051222.htm>). Most fees are indicated as a range, in order to allow some scope for the treating veterinarian. For some years, the fees have been slightly higher than those of the surrounding practitioners, in order to avoid unwanted competition.

Besides the cooperation with veterinary practitioners in terms of referrals, the university also works together with resident veterinarians within the framework of practical training. Thus, more than 100 resident veterinarians act as instructors for the university, training students who are performing extramural work on their own responsibility but under supervision of the university and without payment by the university. The vice-rector for study affairs appoints instructors upon their own request and after an expert's report by the subject representative of the university.

The university also likes to cooperate with external institutions in terms of regular course teaching during the semester. The clinic for swine cooperates e.g. with a contractual site, where about 40 piglets are operated (kryptorchids, scrotal hernia, etc.) every three weeks. Together with supervisors (treating veterinarian and university assistants), the students perform routine operations.

The Centre for Artificial Insemination and Embryo Transfer cooperates not only with veterinarians but also with breeders' associations, which provide additional patients (e.g. breeding hygiene programmes). As requested by Austrian animal breeding legislation, the centre participates in the breeding programmes of approved breed registries.

Through the monopoly position as single institution for veterinary training in Austria, and through the relatively manageable number of graduates per year, resulting in good personal contacts, cooperation between veterinary practitioners and university facilities are well established in the field of research.

The VUW, which acts both as a source of information and practice, offers special expertise in the following areas:

- oncology
- cardiology
- dermatology
- gastroenterology
- neurology
- endocrinology
- rodents
- ophthalmology
- dentistry
- physiotherapy

To administer the patient cases, a modern electronic medical and billing system, the TIS ("Animal Hospital Information System") has been in use at the University since 2001. It supports more than 400 users in all clinics and animal hospital facilities in the medical documentation and administration of their patients. In 2004, the software handled approximately 24.000 cases and posted 30,000 bills worth over 4.5 million Euros.

## 7.10: RATIOS

**Total number of graduates** (academic year): 160 graduates per year

Numbers here refer to the calendar year 2004

**Farm animals:** 3,659

**Small animals:** 20,401 (including birds, wild animals, and other animals)

### 7.10.1: Animals available for clinical work:

Ratio: students/production animals

$$\frac{\text{number of students graduated in the last year}}{\text{number of production animals}} = 160/3659 \approx \mathbf{1/23}$$

Ratio: students/companion animals

$$\frac{\text{number of students graduated in the last year}}{\text{number of companion animals}} = 160/20401 \approx \mathbf{1/128}$$

#### 7.10.2: **Animals available for necropsy:**

Ratio: students/post-mortem examinations

$$\frac{\text{number of students graduated in the last year}}{\text{number of cadavers necropsied}} = 160/2119 \approx \mathbf{1/13}$$

## 2. COMMENTS

With only one exception, the consultation hours of the animal hospital are still not unified, which conveys a negative image of the hospital to the general public. It is also an obstacle for the clinical services, if patients need to be transferred to another unit.

The VUW owns animals dedicated to propaedeutical and clinical practicals of students. It is important to keep the ratio students / animals at a reasonable and justifiable level.

Obstetrics, gynaecology, and andrology: expected developments:

- Further increase in the number of horses and companion animals with reproductive or obstetrical disorders presented to the clinic is expected (although not necessarily encouraged, because the clinicians should also have time for research activities). However, growing case numbers enable further intensified clinical teaching (increase of the time students can work meaningfully in the hospital)
- Qualification of all clinicians as Diplomats of the European College of Animal Reproduction, thus allowing to maintain the quality of services in this discipline and to ensure adequate qualification of clinical teachers
- Increasing the number of production animals seen during farm visits, as farms are kept more and more as isolated units which do not allow ruminants or swine to leave for an animal hospital

## 3. SUGGESTIONS

There should be uniform consultation hours in the entire animal hospital.

The availability of the unit for diagnostic imaging should be increased to keep up with other central services of equal importance, as there is e.g. Clinic of Anaesthesiology and perioperative Intensive Care. This would directly lead to a centralization of expenditure for diagnostic imaging, and therefore enhance the possibilities of investing into and promoting this discipline.

## 8 Library and Learning Resources

### 1. Factual Information

#### 8.1 Library

The University Library of the VUW ("UB-VUW") serves both the university and the general public. It is the only institution in Austria responsible for collecting and cataloguing documents in the field of veterinary medicine and for providing access to these materials.

##### 8.1.1 Budget

Expenditure (Euro)

	2004	2003	2002
Books, periodicals (purchase and maintenance)	752,634	763,575	793,291
Operating expenditures	126,130	103,958	72,679
Facilities and technical equipment	27,009	0	72,627
Staff salaries	565,400	508,003	505,127
<b>Total</b>	<b>1.471,173</b>	<b>1.375,536</b>	<b>1.443,724</b>

##### 8.1.2 Personnel

Staff (as of 1/1/2005)

The library currently employs 15 full-time staff members:

3 professional librarians with academic degrees (2 of "veterinary medicine and information sciences" and 1 of "veterinary medicine")

4 professional librarians with undergraduate degrees,

6 library assistants,

2 support staff members

All staff members make some contribution to user services - the professional librarians at the information desk and the others in the lending department.

##### 8.1.3 Stocks

	2004	2003	2002
Books and bound periodical volumes	193,940	190,041	185,933
Current periodical subscriptions	817	868	867
Online Journals	12,098	10,034	6,250

The Central Library holds 193.940 books and bound periodical volumes and is subscribed to scientific periodicals. The annual growth rate for books and bound journals is in the range of 2 to 4%, for journal print-subscriptions declining since 2004. The access rate to online journals has increased by a factor 2 in the last three years.

#### 8.1.4 Space and seating capacity

##### Main library

The main library is a very well-equipped two-storey building with a total usable area of 2,620 m<sup>2</sup>, including an open air reading area on top of the building. It provides 155 indoor reading places and more than 6.000 metres of shelving space. There are two extra study rooms with a total of 25 reading places in other buildings of the campus.

Space and seating capacity of the main library:

	<b>Reader places</b>	<b>Usable area</b>	<b>Shelving space</b>	<b>Shelving in running metres</b>	<b>Occupied as of 31/12/04</b>
Basement	---	512 m <sup>2</sup>	245 m <sup>2</sup>	2,990 m	1,722 m
Ground floor	58	1,049 m <sup>2</sup>	648 m <sup>2</sup>	1,702 m	1,381 m
First floor	97	1,059 m <sup>2</sup>	624 m <sup>2</sup>	1,920 m	1,263 m
Open air reading area	40	-----	-----	-----	-----
<b>Total</b>	<b>195</b>	<b>2,620 m<sup>2</sup></b>	<b>1,517 m<sup>2</sup></b>	<b>6,612 m</b>	<b>4,344 m</b>

#### 8.1.5 Library opening hours

<b>Term:</b>	Monday, Wednesday, Thursday	9.00 a.m. - 5.00 p.m.
	Tuesday	9.00 a.m. - 7.00 p.m.
	Friday	9.00 a.m. - 4.00 p.m.
<b>Vacation period</b>	Monday - Thursday	9.00 a.m. - 5.00 p.m.
	Friday	9.00 a.m. - 4.00 p.m.

Lending of books is possible during opening hours.

The information and reference desk of the library is available during opening hours, also via telephone and e-mail.

The two extra study rooms are open daily from 6.00 a.m. - 24.00 p.m.

#### 8.1.6 Number of loans

	<b>2004</b>	<b>2003</b>	<b>2002</b>
Number of loans	34,632	31,874	31,506

#### 8.1.7 Computerised information retrieval systems

Since 1990, the library has been connected to the library automation system of the Austrian Academic Library Network. All acquisitions (including issues of periodicals) are added on-line to this system. Access to the OPAC (on-line public access catalogue) is provided at workstations in the library building and in all institutes and clinics of the university.

Our WWW-OPAC can be reached via <http://www.vu-wien.ac.at/bibl/>. 1.575 databases are also offered over the university's LAN: e.g. ANIMAL PRODUCTION SCIENCE, BIOSIS, CURRENT CONTENTS (all editions), FSTA, MEDLINE, SCIENCE CITATION INDEX EXPANDED, VETERINARY SCIENCE DATABASE.

The library also offers online searching of Dialogue databases. This service is called "IvetS".

### 8.1.8 Subsidiary libraries

The main library also manages a number of small library units based at the different units of the University departments. These units typically comprise 30 square metres with a capacity of approx. 1,500 volumes. A central list regarding the subsidiary libraries' contents is available in the main library.

## 8.2 Information Technology Services

### (a) Centre for Audiovision

The centre for audiovision is specific to the VUW and is operated by 2 full-time employees. The services are rendered to the University staff members only and cannot be utilised by the students. Therefore, no video cassettes are available at the centre for audiovision for students. This collection of video cassettes, CD's and DVD's is located in the main library, where 459 video cassettes are available at 8 workplaces, 6 of them in a group study room. The facilities in the main library are accessible during the opening hours (see above). Furthermore, audio-visual material is also incorporated in subsidiary libraries, where it is available only on demand.

In the past five years, 35 videos and DVD's have been edited. Furthermore, many "moving slides" have been produced in order to integrate this material into electronic presentations. The main task in the last years was to support the University staff in printing slides, scanning images/slides and recording, editing, copying or digitizing videotapes.

Also part of the service is the maintenance of the audio-visual facilities in the lecture rooms, the support in their usage and the assistance in various audio-visual problems.

### (b) Computer service

The Central Computing Services (ZID) is a service unit of the University. The scope of the ZID is defined in the relevant legislation and in the University statutes by providing a modern and efficient infrastructure in the fields of computer networking, communication and computer equipment for all units of the university. These are scientific research and training, Animal Hospital, student affairs, management and administration, library and information systems.

Budget 2004: € 85,000,-- investments for central services (hardware, servers, infrastructure, operating costs (including LAN and PC-rooms etc.), software pool)

Staff: 13 full time employees

Equipment:

- 40 central servers, 22 PC' s with various operating systems for ZID staff, 1,472 workstations and 193 printers on the entire the campus
- Operating Systems:  
Windows NT/2000/XP, SUN-Solaris, LINUX, DOS/Windows, Apple OS
- Cabling System:  
Structured cabling system  
Fibre-optic links between Computing Centre and all 47 buildings  
Twisted pair cat. 5 copper cables in-house  
1,809 active connections
- Topology: Ethernet  
Star shaped topology, "collapsed backbone" structure  
46 physical segments, 114 repeaters (HUBs) and ethernet switches (V-LAN technique), wireless LAN in the clinical area

- Internet-Connectivity  
1 router  
Fibre-optic connection to the nearest internet-node at the University of Vienna  
45 MBit bandwidth effective
- Protocols  
TCP/IP, Apple Talk (some segments)

Facilities for self-instruction and training:

- PC-room: 36 PC's (2 years old), 1 laser printer, 3 servers  
Intended purpose: for students of the University  
Opening hours: Monday through Friday from 9.00 a.m. – 8.00 p.m.  
During vacations: Monday through Friday from 9.00 a.m. – 4.00 p.m.
- Course-room: 10 workstations (3 years old), 1 server  
Training for University staff and students  
(e.g. SAP, Animal Hospital System, courses in genetics, nutrition)
- So-called "computer store": 10 notebook computers (2 years old)  
Project "rent a PC", for students and staff
- Additional services: E-Mail accounts for all students, web- and intranet server  
Information point about University affairs and internal communication platform

Other self-instruction facilities:

- Course room of the department 1 (institute of Medical Physics)
- Teaching in the application of computers: since 2004, our University has cooperated with the Vienna University of Economics
- 120 interactive CD-ROM's are available in the main library

## 2. Comments

Library:

Jill Crawley-Low lists in her article: "Veterinary medicine books recommended for academic libraries, published in: J. Med. Libr. Assoc. 2004, 92(4): 473–488." (469 English book titles). In our library there are 75% of these titles (all subjects of veterinary medicine) available. The rest, textbooks in medicine and pharmacology, is available in other Austrian university libraries. However, there are numerous German textbooks on the same subjects in our library. Furthermore, a textbook collection for students of about approximately 700 titles (up to 60 items per title) can be used.

817 current titles of print journals (595 in the main library and 222 in the subsidiary libraries) are offered - in the last two years the emphasis has shifted to online journals (access to full text online journals 2003: approx. 10,000, 2004: 12,098 titles).

The opening hours, the number of the readers' places and the 15 full-time employees are sufficient.

IT facilities:

Due to the fast technical progress in hardware as well as in software, investments have to be carried out in the near future since most of the hardware is three or more years old. Especially when the rectorate has reached decisions regarding the introduction of e-learning at the university, new equipment will be necessary to take advantage of new possibilities and less time-consuming processes.



### **3. Suggestions**

For maintenance of the current standard of the library and of IT facilities an increase in budget - beyond the annual inflation adjustment - will be needed.

An updating of the electronic resources workstations of the library and of the PC's in the user room of the computer centre is absolutely necessary by the year 2007 at the very latest. In 2006 the replacement of three central servers (ADS, Exchange, and TIS) in combination with a modern storage area network-system will be imperative.

To ensure the complete functionality of all variations of e-learning, the range of existing network configurations must be extended.

Moreover, attention has to be directed to the continual extension of the Animal Hospital Information System Software and the updating of the LAN infrastructure (router, switches).

## Chapter 9 ADMISSION AND ENROLMENT

### 1. FACTUAL INFORMATION

It is important to take into account that according to the Austrian legislation it was not possible to define any restrictions or selection processes (e.g. *numerus clausus*) concerning admission to the VUW up to the summer term 2005. The sentence of the European High Court on 7 July 2005 has changed this situation by pointing out that the situation in Austria discriminates foreign students from EU countries. Therefore, in some disciplines (medicine, veterinary medicine, psychology and so on) the universities concerned were authorised by an amendment to the UG 2002 and for a period of three years, to establish specific selection procedures. This decision was first enforced in the winter term of 2005/06.

#### 9.1: STUDENT NUMBERS

Table 9.1.1: Undergraduate student composition

a.	Total number of undergraduate students	1,657
b.	Male students	294
c.	Female students	1,363
d.	Austrian citizens	1,384
e.	Foreign students	273
	- from EU countries	232
	- from non-EU countries	41
f.	1 <sup>st</sup> year students	214
g.	2 <sup>nd</sup> year students	200
h.	3 <sup>rd</sup> year students	197
i.	4 <sup>th</sup> year students	190
j.	5 <sup>th</sup> year students	185
k.	6 <sup>th</sup> year students	
l.	7 <sup>th</sup> , or subsequent year students	
m.	students not in any specific year	671

The figures indicated in table 9.1.1. are inaccurate from the 4<sup>th</sup> study year onwards, insofar as the curriculum 2002 has only reached its 4<sup>th</sup> year of implementation. Furthermore, the curriculum of 1994 only included five years of study and did not provide for strict assignment of students according to year cohorts which results in a larger group of students of the curriculum of 1994, which is beyond the regular length of the degree programme and which can thus be assigned to the 4<sup>th</sup> or 5<sup>th</sup> year of studies. In addition, the curriculum of 1994 scheduled a period of one semester to take all eleven clinical exams, after having completed all compulsory courses, but this period often stretches up to one and a half years. Correspondingly, there is a comparatively large number of students from the former curriculum, who do not belong to any particular year of studies.

Table 9.1.2: **Postgraduate student composition**

n.	Total number of postgraduate students	300
o.	Male students	93
p.	Female students	207
q.	Austrian citizens	239
r.	Foreign students	61
	- from EU countries	41
	- from non-EU countries	20
s.	1 <sup>st</sup> year students	
t.	2 <sup>nd</sup> year students	
u.	3 <sup>rd</sup> year students	
v.	4 <sup>th</sup> year students	
w.	5 <sup>th</sup> , or subsequent, year students	

Total number of students in the institution: 1957

For postgraduate (doctoral) students no strict year assignment is possible. Normally, the duration of the doctoral programme lasts two years; however, there is no pre-defined schedule of the curriculum since the main emphasis is put on the composition up of a doctoral thesis. The prescribed compulsory and elective courses are rather connected to the progress of the dissertation than to a specific semester.

The internships run for one year, residencies, on the other hand, last three years on average, though without strict assignment to study years.

## 9.2 STUDENT ADMISSION

The secondary school leaving certificate (Abitur, Matura) entitles students to admission to the universities. Another way leading to admission starts from completed apprenticeship or training as a nurse or medical-technical assistant. Admission is granted after passing a special examination for entrance qualification (Berufsreifeprüfung). An additional legally based requirement is a sufficient command of the German language.

In addition, the admission requirements for the VUW stipulate that the subjects "Biology and Ecology" and "Latin" must have been part of the secondary education. Students, who did not take "Biology and Ecology" at secondary school, have to pass a preliminary supplementary exam in this subject before being admitted. If Latin was not part of the student's secondary education, he/she can be admitted, but will have to take an examination in Latin during the first two semesters. Up to 2005, there were no further restrictions or selection processes (e.g. *numerus clausus*) concerning admission to the VUW.

Based on the European Court sentence from 7 July 2005 – which led to the supplement of § 124 a and b in the UG 2002 – the VUW was authorized to establish an admission and selection procedure, which entered into force for the first time for the winter term of 2005/06. This procedure consists of a multi-stage admission process, in addition to the fulfilment of the above-mentioned general requirements.

The admission procedure rates the following aspects by credit points:

- 1.) The school grades (school-leaving certificate) of the subjects German, Biology, Chemistry and Physics
- 2.) The plausibility and the stringency of the curriculum vitae and the letter of motivation
- 3.) The correspondence of the individual expectations of the applicant with reality (aptitude test)

## 4.) If necessary, participation in an interview

At the end of this procedure, the credits accumulated at the various stages result in a ranking list, with the best-ranked applicants granted admission to the degree programme of veterinary medicine (in 2005 a total of 214 students).

The first-time realisation of this admission procedure was as follows:

§ 1 The admission procedure for the degree programme of veterinary medicine at the University of Veterinary Medicine Vienna in the winter term 2005/06 consists of three stages:

- 1) Application for a place at the university
- 2) Realisation of an admission procedure
- 3) Formal admission to the study programme

§ 2 With the introduction of the above-mentioned procedure, the admission requirements for courses according to item 3.5. of the curriculum of veterinary medicine 2002 with a limiting effect, are omitted.

§ 3 Application for a place at the university in the winter term of 2005/06

- 1) The admission to the study programmes of the University of Veterinary Medicine Vienna requires application for a place at the university.
- 2) Each application must indicate the desired training module within the study programme.
- 3) Indicating more than one training module is not permissible.
- 4) The training modules and their capacities are:

Training modules	Places
Small animal medicine	50
Farm animal medicine	35
Equine medicine	20
Medicine of zoo- and wild animals; Medicine of poultry, pet birds, and reptiles	10
Medical biotechnology and biotechnology of animals	10
Biotechnology of reproduction	10
Food science and veterinary public health services	45
Laboratory animal science, experimental medicine, and alternative methods to animal experiments	7
Bachelor programme of equine sciences	50
Bachelor programme of biomedicine and biotechnology	30
Master programme of biomedicine and biotechnology	16

§ 4 The written application contains the following documents (either submitted as originals or as legalised copies):

1. Proof of the general University entrance qualification by an Austrian secondary school leaving certificate (Reifezeugnis), an Austrian university entrance qualification exam, an Austrian special university entrance qualification, or
2. proof of the University entrance qualification by an EU/EEA secondary school leaving certificate, provided the equivalency to an Austrian secondary school leaving certificate

3. Certificate of the final school year, listing all subjects that had been completed prior to the school leaving exam
4. Evidence of those supplementary exams required to be passed prior to admission to the studies, according to the University Act § 124a, and the University entrance qualification decree 1988
5. Proof of knowledge of the German language (§ 63 (1) 3 University Act 2002)
6. Proof of nationality
7. Curriculum vitae
8. Letter of motivation
9. 3 international reply coupons
10. Indication of an e-mail address

§ 5 (1) Applications must be submitted to:

University of Veterinary Medicine Vienna  
Study affairs office  
Veterinärplatz 1  
A-1210 Vienna

- (2) The application period start on 1 August 2005, and ends on 26 August 2005, 12.00 a.m. (date of postmark).
- (3) Only complete applications submitted strictly within the application period can be considered for the further admission procedure. The order of arrival of the documents within the application period is irrelevant for the further procedure.
- (4) An online pre-registration of personal data is also required for complete application. (link: [http://vmutpp.vu-wien.ac.at/vuw/service/anmeldungen.index\\_html](http://vmutpp.vu-wien.ac.at/vuw/service/anmeldungen.index_html))

§ 6 (1) Following the application period, a multi-stage admission procedure takes place.

(2) The multi-stage admission procedure consists of:

- 1) Review of the application material in terms of completeness
- 2) Evaluation of the application documents with regard to
  - a) Knowledge of the German language
  - b) Knowledge of physics
  - c) Knowledge of chemistry
  - d) Knowledge of biology
  - e) Plausibility of the letter of motivation
  - f) Review of previous achievements and qualification for the study programme and the profession
- 3) Compulsory participation in an aptitude test in September (calendar week 37), which takes place in Vienna, without claim for reimbursement of costs. A separate official announcement will publish the exact date of the aptitude test at calendar week 37. Participants have to identify themselves by showing an identity card or any other official photo document, otherwise, and likewise in case of non-attendance, the result will be rated by zero.

(3) The further admission procedure excludes incomplete applications due to formal reasons.

(4) The knowledge of § 6 (2) 2 a – d is classified according to the following formula:

Grade	Credits
1	7
2	4
3	2
4	1
5	0

- (5) For § 6 (2) 2 e – f between 0 and 21 credits are allocated.
- (6) The assessment of the aptitude test comprises the percentage of correspondence to the expert profile and results in the following credits

Percentage of correspondence	credits
95-100	32
90-94	28
85-89	24
80-84	20
75-79	16
70-74	12
65-69	8
60-64	4
< 60	0

- (7) The sum of credits achieved after § 6 (2) 2 a – f and § 6 (2) 3 of the admission procedure results in a ranking list of applications.
- (8) Those applicants who have achieved between 70% and 100 % of the maximum possible credits are admitted to the study programme in descending order of the application results, and in accordance with the capacity of study places available.
- (9) The remaining available places are then assigned following personal interviews, again in descending order of the final application results and again in accordance with the capacity of study places available within the respective training module chosen by the applicant.
- (10) Applicants are invited to interviews to the extent of remaining available places plus 30% of additional candidates. The invitations are in accordance with the sequence of the ranking list according to § 6 (7) of the admission procedure.

#### § 7 Interviews

- (1) The interviews are held in the calendar weeks 38 and 39.
- (2) The study affairs office of the University of Veterinary Medicine Vienna notifies the participants by using the e-mail address indicated according to § 4 (10) with a summons of at least five work days.
- (3) Participation in these interviews is at the applicant's own expenses.
- (4) If the appointment is failed to be kept at due date, the interview will be rated by zero credits. Repetition at a later date is not possible.
- (5) The interviews are held as non-public individual talks with a selection committee: aiming at providing the candidates with the opportunity to orally present and state the reasons concerning their special aptitude and personal motivation for the study programme and the desired profession. The maximum number of credits to be achieved is 30. The duration of the interview is about 30 minutes. The substantial contents of the interviews are recorded by the person in charge of the minutes, who has been previously nominated by the committee chairperson. Participants have to identify themselves by presenting an ID card or any other official photo document, otherwise, and likewise in case of non-attendance, the result will be rated by zero.
- (6) The selection committees are appointed by the vice rector for study affairs and consist of university teachers, students and external veterinary professionals.
- (7) The members of selection committees are bound to discretion within their activities.

## § 5 Partiality

In case of partiality due to family or personal relations towards one of the candidates, the respective committee member has to inform the vice rector of study affairs prior to the interview. The vice rector will then assign the candidate to another selection committee without a period of summons according to § 4 (2).

§ 9 The combination of the results of the interviews with the points previously achieved leads to a final ranking list of applicants. Assignment of the remaining available places is done according to this ranking list in descending order and in accordance with the respective capacity of study places.

## § 10 Admission to the study

The admission according to § 6 (8) and § 9 of these regulations is done in compliance with the rules of the University Act.

## § 11 Admission in case of equal ranking (*pari passu* clause)

In case of equal ranking and underrepresentation of one gender, a representative of that particular gender will be given priority. In case of subsequent equal ranking, the decision will be taken by drawing lots.

§ 12 If the assigned study place is not availed within a period of 10 days by payment of the tuition fee and by taking the required formal steps for admission, the claim to admission expires and the study place is transferred to the candidate who is next in ranking.

§ 13 Applications not considered can be re-submitted in the subsequent years.

The newly admitted students have entirely different knowledge resulting from their previous school education. Although nearly 80 % of first year students graduated from secondary schools offering general education, these schools seem to lead to graduation at different levels, especially in the subjects of natural science. To fill these gaps, the first semester offers compulsory lectures in the fields of Biology (Zoology, Domestic Animal Science, Cell Biology), Chemistry (the basic concepts of Medical Biochemistry) and Physics (the basic concepts of Medical Physics) to build up a fair level of knowledge for every student.

As of the study year 2005/06 a limitation of study places in the field of veterinary medicine has become possible due of the European Court sentence of 7 July 2005. This possibility opened up through an amendment of the UG 2002 and is limited to a period of three years.

On the one hand, the capacity of study places available at the VUW was calculated, based on the specifications of the EAEVE, where there are specific ratios (teaching staff, patients, laboratory space, etc) in different areas, leading to a fixed number of students, who can be trained adequately by use of these resources. On the other hand, the calculation refers to the German Decree for Capacities, which determines the teaching capacity by taking into account the existing teaching positions and calculating a 'curricular norm value', which describes the amount of time needed by the entire existing teaching staff to train one student.

Additional admissions beyond the pre-determined capacity of study places are excluded.

The VUW proceeds on the assumption to be able to realise the admission of students in the study year 2006/07 following the above-described admission procedure. Based on the experience made in 2005, there is no intention of substantial changes; however it seems to make sense to improve some of the administrative logistics.

Table 9.2: **Intake of veterinary students**

Year	number applying for admission	number admitted	
		'standard' intake	other entry mode (describe)
2005	591	214	-
2004	363	363	-
2003	386	386	-
2002	306	306	-
2001	277	277	-
<b>2000 a</b>	<b>287</b>	<b>287</b>	-
1999	277	277	-
1998	307	307	-
1997	304	304	-
1996	244	244	-

### 9.3: STUDENT FLOW

Table 9.3.1: **Student flow**

Of the students, who were admitted in 2000 are at present (five years later) in the:

b.	1 <sup>st</sup> year	9
c.	2 <sup>nd</sup> year	5
d.	3 <sup>rd</sup> year	1
e.	4 <sup>th</sup> year	1
f.	5 <sup>th</sup> year	142
g.	how many have graduated	5
h.	how many have dropped out or been asked to leave.	123
i.	how many are not in any identifiable year	1

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

	Year	Number graduating
j.	2005	122
	2004	124
	2003	149
	2002	156
	2001	187



Table 9.3.3: **Average duration of studies**

In the case of those 122 students graduating in 2005, they have attended the veterinary training course for the following period:

	Duration of attendance	number
k.	4 years	0
l.	5 years	4
m.	6 years	25
n.	7 years	30
o.	8 years	20
p.	9 years	12
q.	10 - 13 years	24
r.	more than 13 years	7
Average duration of studies of the students who graduated in 2005: 8.3 years		

The number of students enrolled in each year of the veterinary course is variable because the course of studies is not separated into formal study years, since this would require the student's being obliged to take the scheduled exams at the end of the semester or study year. Instead, the course of study is organised by law as a sequence of examinations with no restriction in time. The Austrian system of university studies is generally organised as a sequence of compulsory courses and examinations, rather than according to courses and years. Students can enrol for courses of a scheduled study year, even if they have failed to complete all examinations of the previous year, which makes it impossible to assign students to study years. The only clear distinction relates to the completion of the 1<sup>st</sup> and 2<sup>nd</sup> diploma examinations, which separate the 1st stage of studies (preclinical sciences) from the 2nd stage of studies (paraclinical sciences) and the 3rd stage of studies (clinical teaching) of the course of study.

In general, a student must pass all compulsory courses assigned to a specific subject, before he or she can register for the corresponding examination.

In detail, the curriculum requires fulfilment of the following prerequisites.

The successful completion of all courses and examinations of the first stage of studies is the prerequisite for participation in the courses of the second stage of studies. The first examination of the second year of studies is an oral comprehensive exam before a committee of the subjects of anatomy, histology and embryology, and physiology.

The successful completion of all examinations of the second stage of studies (study years two and three) is a prerequisite for participation in any courses of the third stage of studies. The successful completion of the written exam in clinical propaedeutics is a prerequisite for admission to the propaedeutical clinical practicals. The successful completion of an oral exam before a committee in clinical propaedeutics with a practical part is the requirement for admission to the written comprehensive exam before a committee in organ -, metabolic -, and infectious diseases, emergency medicine and medicine of epidemics. The successful completion of that exam is a prerequisite for participation in the clinical rotations.

The requirements for participation in courses of the specialisation modules is the successful completion of the oral exam before a committee with a practical part in the area that tests the skills of clinical diagnostics and therapy.

Participation in the courses of the chosen module of specialisation to the required extent of hours of training is a prerequisite for admission to the oral exam before a committee in the area of specialisation.

Admission to the study programme expires, if a student fails to pass an exam even at the final permissible resit.

## **2. COMMENTS**

As mentioned before, previous knowledge of graduates from Austrian secondary schools varies considerably in the area of basic natural sciences, and in some cases, is insufficient. To fill these gaps, the first semester offers compulsory lectures in the fields of Biology (Zoology, Domestic Animal Science, Cell Biology), Chemistry (the basic concepts of Medical Biochemistry) and Physics (the basic concepts of Medical Physics) to build up a fair level of knowledge for every student.

Up to 2005, the university had no means of controlling student enrolment, since the UG 2002 provided free access to the Austrian universities as mentioned above. Information campaigns by the VUW and the Chamber of Veterinarians to make potential students aware of the critical situation, both, at the VUW and in the professional field have failed to reduce the numbers of enrolled students. It seems that the choice of a particular study programme is frequently governed by emotional and romantic ideas rather than by careful consideration. Therefore, it is of vital importance to the VUW that it will also be possible in future to select an adequate number of students to be admitted. This is the only way to ensure teaching and training of sufficient quality.

The effects of the measures implemented by the curriculum of 2002 to reduce the dropout rate and to establish a system of year cohorts cannot be evaluated statistically at the moment, since there are no graduates yet, and even the first group of students has only passed the first two diploma examinations.

## **3. SUGGESTIONS**

In any case, the current provisional regulations, limited to a period of three years, for the admission of students following an admission procedure, must be embodied into a law.

Analyses of the course of studies by comparing several year cohorts must be applied, if necessary through adaptations of the curriculum, to safeguard the reduction of the dropout rate, the convergence of the actual length of studies to the prescribed length of studies, as well as the required qualifications for the veterinary profession.

## Chapter 10 ACADEMIC AND SUPPORT STAFF

### 1. FACTUAL INFORMATION

Table 10.1: Personnel in the establishment

		Budgeted posts (FTE)	Non-budgeted posts (FTE)	Total (FTE)
<b>1. Academic staff</b>				
a)	Teaching staff	304.04		304.04
b)	Research staff	34.08	94.57	128.65
c)	Others (please specify)	-	-	-
d)	Total academic staff	338.12	94.57	432.69
<b>2. Support staff</b>				
e)	responsible for the care and treatment of animals	70.00	9.75	79.75
f)	responsible for the preparation of practical and clinical teaching.	41.70	2.00	43.70
g)	responsible for administration, general services, maintenance, etc.	200.00	6.95	206.95
h)	involved in research work	83.43	15.90	98.96
i)	others (please specify)			
j)	Total support staff	395.15	34.60	429.36
3. Total staff (d + j)		733.25	129.17	862.05

Table 10.2: Allocation of personnel to the various departments

Name of Department	Academic staff				Others	Support staff		
	Full.Prof	Ass.Prof.	Assoc.Prof.	Assistants		Technical/animal		Admin./general
						Teaching	Research	
1	5.00	7.00	8.00	5.70	-	6.33	12.67	12.50
2	6.00	20.50	7.00	4.86	1.50	12.20	24.40	14.00
3	3.05	12.00	10.50	15.39	-	8.70	17.33	13.80
4	3.00	23.50	1.00	2.65	4.95	10.67	21.30	6.50
5	6.00	47.50	4.00	26.60	9.45	14.70	29.33	16.25
6	4.00	15.00	5.50	13.79	3.60	7.83	15.67	4.00
7	2.00	9.00	2.50	2.50	-	5.17	10.30	5.00
RI 1	1.00	2.00	3.00	-		5.07	10.13	1.60
RI 2	-	-	-	1.00		1.00	2.00	1.00
RI 3	1.00	-	3.00	-		1.00	2.00	1.00

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

A.	Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching	304.04
B.	Number of research staff involved in undergraduate teaching (see explanations to this table above)	43.22
C.	Total number of personnel responsible for undergraduate teaching (A + B)	347.26

**Ratios**

Ratio: teaching staff/undergraduate students

number of teaching staff	=	347.26	=	1
number of undergraduate students		1657		4.77

Ratio: teaching staff/support staff

number of teaching staff	=	347.26	=	1
number of support staff		429.36		1.23

**2. COMMENTS**

The implementation of future human resources development based on the development plan will be of vital importance for the quality of teaching, research and patient care.

**3. SUGGESTIONS**

## Chapter 11 CONTINUING EDUCATION

### 1. FACTUAL INFORMATION

Continuing training of veterinarians is laid down in the professional legislature (*Tierärztegesetz*) and is controlled by the Chamber of Veterinarians (*Tierärztekammer*). The VUW offers a program of regular courses for continuing education organised in close cooperation with the Austrian Association of Veterinarians, the Chamber of Veterinarians, the Association of Friends of the VUW and other organisations of the veterinary profession, e.g. the Association of Austrian Small Animal Practitioners (VÖK) under the title of Vetucation™.

### 11.1: CONTINUING EDUCATION COURSES HELD AT THE ESTABLISHMENT

Table 11.1.1: Courses organised by the establishment itself in the year 2005

Title of course	Number of participants	Total number of hours of the course
The ophthalmologic case of emergency	not available	7
Workshop "Mycotoxins"	35	8
Ornamental fish and their diseases	not available	7
Dietetic health prophylaxis for cats	not available	4,5
Scientific session of complementary veterinary medicine	not available	2
2 <sup>nd</sup> Fall meeting of swine practitioners including three workshops (pathology, climatic conditions in stable, mycotoxins)	245	20
Reproductive medicine in horses	not available	6
European Workshop on Movement Science	not available	26
3 <sup>rd</sup> Int. Workshop on the Assessment of Animal Welfare at Farm and Group Level	190	30
Emergency medicine in small animals	150	7
Research infrastructure in the area of life sciences (7 <sup>th</sup> EU-framework programme)	not available	13
Meeting of the veterinary pharmacologists	not available	10
New Food Legislation	not available	16
47 <sup>th</sup> Course for functional claw trimming	not available	12

Table 11.1.2: Courses organised by the establishment itself in the year 2004

Title of course	Number of participants	Total number of hours of the course
Food safety	not available	16
Animal health, reproduction and genetics	10	3
Seminar on ophthalmologic cases of emergency	not available	8
Talk by Waxman	35	2
Making dendritic cells from inside-out: engineering of monocytes with lentiviral vectors for cancer immunotherapy	50	3

Congress of the Association of Veterinary Anaesthetists	not available	20
1 <sup>st</sup> Fall meeting of swine practitioners including three workshops (pathology and diagnostics, sow fertility, pig housing)	197	27
46 <sup>th</sup> Course for functional claw trimming	not available	12

Table 11.1.3: Courses organised at the establishment by outside organizations in the year 2005.

Title of course	Number of participants	Total number of hours of the course
Talk by C. Djerassi	300	3
Seminar on homeopathy	not available	3x18
Good practice models	140	8
Annual conference of the Society of Austrian Chemists	150	18
Workshop on classical homeopathy	not available	3
Talk by Bassler	150	2
Borreliosis and Fibrococis	not available	4
New Federal Law for Animal Protection	not available	10
Interactive Case Studies – Internal Medicine	not available	15
From source to shelf: medicinal & aromatic plants	not available	17
ESAVS – Dermatology	not available	not available
BSE – Status quo and Quo vadis?	120	18
Avian influenza	not available	3
Control of salmonella in Austria	not available	7
Alopecia – the most important differential diagnoses of hairless spots in dogs and cats	not available	3
Talk Rohwer "Studies Investigating"	not available	2
Talk Palese "Influenza"	not available	2
Conference of the Animal Health Agency	not available	8

The contribution of teaching staff in courses organized by outside organisations in total amounts to 321 lectures in 2004.

## 11.2: DISTANCE LEARNING (INCLUDING VIA INTERNET)

Currently, there exists the possibility to store contents of education and continuing education on a special server, where these files can be downloaded within the VUW intranet. In addition, some subject representatives have developed and made available documents in the form of CD-ROM's, which can be purchased by students as well as by veterinarians. Relevant contents refer to:

- Anaesthesiology
- Animal welfare
- Biochemistry
- Botany
- Cell biology
- Clinical virology

Diagnostic Imaging  
Immunology  
Meat hygiene  
Milk hygiene  
Nutrition  
Obstetrics  
Parasitology  
Pathology  
Pharmacology.  
Wild life ecology  
Surgery

As part of e-learning, the application *e-surgery* became operative at the end of 2005, but is currently only accessible for university members within a password-protected area.

## 2 COMMENTS

The levels of the courses for continuing education differ considerably, depending on the organiser and the persons in charge. This leads to a general scepticism towards continuing education activities, which is derived partly from bad personal experience or from negative publicity within the circle of friends.

The e-learning programme is a long-term project with a gradually increasing offer that can very well be tuned to the particular needs, which in turn requires substantial efforts.

## 3 SUGGESTIONS

The experiences with very different quality levels of continuing education activities and the only hesitant perception of the obligation of continuing education by the veterinarians on the one hand and the very high number of providers of continuing education activities on the other hand have resulted in the foundation of an academy for continuing education for veterinarians, the so-called VetAk™, in December 2005, in cooperation with the Austrian Federal Association of Veterinarians. The goals of this academy for continuing education are the coordination of the existing training offers, the establishment of proper training opportunities in those areas, where there are no or only few offers available. This is especially true for 'Public health services', and 'Business administration and clinic management'. Further goals are the configuration of information on educational activities, and the introduction of measures for quality assurance. In addition, a database for continuing education shall be assembled and maintained. A system for assurance of accreditation and quality will be established in order to implement these objectives to the best possible extent. After the foundation of VetAk™ in December 2005 in the form of a registered association, a system of education was elaborated. This contains a structure for validation of courses, required proofs of training activities, the allocated amount of continuing education, the process of credit allocation, and the financing of the whole venture.

There is a concept to extend the facilities of e-learning to the area of continuing education for graduated veterinarians.

## Chapter 12 POSTGRADUATE EDUCATION

### 1. FACTUAL INFORMATION

Postgraduate education is incumbent on the University concerning doctoral studies, internships, and residency programmes, however, the Chamber of Veterinarians is in charge of veterinary specialisation at national level (*Fachtierarzt/veterinary specialist*). As in continuing education, University staff members are involved in the national specialisation programmes.

#### 12.1: POSTGRADUATE CLINICAL TRAINING (INTERNS AND RESIDENTS)

Table 12.1.1: Postgraduate clinical training courses

Clinical discipline	Duration of training	Number enrolled		Diploma or title anticipated
		Full time	Part time	
<b>Internships</b>				
1. Internship Small animal medicine	1 year	8	0	
2. Internship Equine medicine	1 year	5	0	
3. Internship Bovine health management	1 year	1	0	
4. Internship Animal reproduction and breeding technologies	1 year	2	0	
<b>Residencies</b>				
1. Animal Reproduction	3 years	2		
2. Clinical Pathology	3 years	1		
3. Comparative Nutrition	4 years	0		
4. Veterinary Dentistry	3 years	1		
5. Diagnostic Imaging	3 years	0		
6. Small Animal Internal Medicine	3 years	0		
7. Equine Internal Medicine	3 years	2		
8. Ophthalmology	3 years	2		
9. Pathology	3 years	0		
10. Public Health	3 years	0		
11. Small Animal Surgery	3 years	5		
12. Large Animal Surgery	3 years	0		
12. Anaesthesia	3 years	4		
13. Parasitology	3 years	0		
14. Bovine Health	3 years	2		

The internships are organised in the form of postgraduate university courses. They last one year, are synchronised with the academic year, and the admitted participants have to pay tuition fees (currently € 726.72 per person and year). The internships are internationally advertised in the spring of each year and a group of university professors representing the respective subject select the participants. For the internship period, the participants sign a



working contract and receive a salary of 14 times € 857.- per annum for the services provided in the scope of their clinical activities.

The residencies, on the other hand, are subject to the training guidelines of the European Colleges of Veterinary Specialisation. In order to train residents, diplomates acknowledged by the EBVS must be available. This applies to areas of specialisation listed in table 12.1.1 under Residencies 1 – 14.

Residents are directly under the supervision of the diplomate in charge and usually employed full-time at the University.

Table 12.2.1: **Taught postgraduate courses**

	Duration of training	Number enrolled	
		Full time	Part time
<b>(a) Diploma level (discipline)</b>			
1. Physiotherapy in animals	2 years		10
2. Functional claw trimming	14 days	12	
<b>(b) Master level (discipline)</b>			

The participation in the university course for ‘physiotherapy in animals’ as well as for ‘functional trimming of claws’ is liable to course fees, without reimbursement. A corresponding graduation certificate documents successful completion of the course following a final exam. Both courses are based on practical application of previously imparted theoretical knowledge, whereas, especially in the course of ‘physiotherapy in animals’, international lecturers ensure high quality. Participation is restricted to graduates of the degree programme of veterinary medicine, although final year students can occasionally be admitted as well. The latter must have graduated from their study program, however, before being allowed to graduate from the university course.

The university course for ‘functional trimming of claws’ can accommodate 12 participants, who must be at least of 19 years of age and fulfil the physical requirements for this kind of activity. After learning the safe use of the special tools for the trimming of claws and the correct handling of the stands for claw trimming, the trimming is practiced first by using dead animal hoofs from the slaughterhouse (use of special knives, pliers and different grinders). Afterwards, the participants can practice and improve their previously acquired knowledge and skills with the more than 100 heads of cattle available at the university-owned TRF using one of three grooming stands. Special emphasis is put on the documentation of claw health or diagnosed claw diseases, respectively, by using protocols for claw trimming. This kind of documentation of claw health by the trained claw groomer will become increasingly important for herd health management in future.

An international master programme ‘Public Health for the South-East Asian Region’ is offered in cooperation with the FU Berlin.

In total, such university courses can only be offered to a small number of participants.

### 12.3: POSTGRADUATE RESEARCH PROGRAMMES

Table 12.3. **Postgraduate research training programmes**

(a) Master Level		Number enrolled	
Indicate discipline and/or department.	Duration of training	Full time	Part time
1. Biomedicine and Biotechnology	2 years	4	0
(b) PhD level		Number enrolled	
Indicate discipline and/or department.	Duration of training	Full time	Part time
1.			
2.			
3.			
Indicate the percentage of PhD students holding a veterinary degree.			
(c) Other doctoral level		Number enrolled	
Degree and discipline and/or department.	Duration of training	Full time	Part time
1. Doctor of veterinary medicine	2 years	0	300

The training programmes listed in table 12.3 are liable to tuition fees and, with few exceptions, students do not receive additional financial support. Such exceptions are the scholarships provided by the Society of Friends of the VUW, the "von Fircks scholarship", and the "Companion animal Award" of the Austrian Society of Veterinarians. In particular, the "von Fircks scholarship", due to its substantial funding, allow its beneficiaries to concentrate on the doctoral studies, without having to work for a living.

Currently, the VUW is in the process of planning so-called doctoral colleges, scheduled for implementation in the winter term 2006/07 and based on the existing research focus areas. A consensus was found with the Austrian Science Fund (FWF) to submit the projects to evaluation by FWF experts and to support grant holders with university funds from the lines of the research focus. Ten scholarships are projected to begin with. Subsequently, these projects should succeed in applying for funds from the FWF, which would lead to potential support of future grant holders. These doctoral colleges are intended as precursors to the PhD study programmes.

## 2. COMMENTS

Especially in the doctoral studies students have to earn their living outside the university. This situation brings about a long duration of doctoral studies and is sometimes linked with a mediocre outcome.

According to the Austrian tradition of conferring the doctoral degree in human medicine without submission of a written thesis, the idea of introducing a PhD programme for veterinary medicine is new and requires a lot of preparation and convincing. However, on the basis of the University Act 2002, it is now within the responsibility of the university and can be dealt with.

## 3. SUGGESTIONS

The establishment of a PhD programme would be beneficial for both, Austrian and foreign graduates, as it would enable a 3 years research work at a clinic or laboratory. On the

international academic market such a PhD graduation would be more valuable than our present Dr. med. vet. or even our "Habilitation". Another point is that PhD students should be able to concentrate on their studies and therefore additional funding has to be made available.

Hence, the VUW should encourage all activities leading to several PhD programmes.

## Chapter 13 RESEARCH

### 1. FACTUAL INFORMATION

The training of students at universities is inseparably connected to research. It is this legally pronounced principle, which distinguishes universities from other educational institutions under public law.

Even the foundation of the VUW in 1765 (then called the "Imperial and Royal School for Horse Cure and Operations") aimed at the successful control of animal diseases and thus scientific research. With the growing demands on veterinary medicine, not only to cure animals, but also to counteract diseases by preventive measures, the aetiology of diseases has become one of the main tasks of the VUW. Clinical research has been complemented by basic research.

Nowadays, scientists increasingly deal with areas of research concerning human beings, besides the classical research areas of veterinary medicine. Techniques from biomedicine and biotechnology are used for the development of innovative therapy concepts in human medicine. Research at the VUW always has very practical aspects leading to important cooperations in the field of veterinary and human health services, economy, and agriculture, but also for animal and environmental protection (for detailed information see Annex 6, pp 295 - 336).

In order to structure the research activities at the VUW and to enhance internal cooperation, main areas of research, so called 'profile lines' were determined.

This should lead to a clear profile of the VUW on its own and should secure integration into the national and European research areas. The 'profile lines' were developed, based on the mission statement of the VUW. This aims at the contribution to holistic problem solving in the following fields:

- Animal health
- Conservation of human health through control of zoonoses
- Quality assurance of food stuff
- Interrelations of men, animal and the environment, as well as
- Conservation of biological variety and animal protection

In April 2002, the following profile lines in the area of research were determined:

- Profile line 1: Control of physiological and patho-physiological processes
- Profile line 2: Infection and prevention
- Profile line 3: Biomedicine and biotechnology
- Profile line 4: Food safety and risk analysis
- Profile line 5: Innovative diagnostics and movement analysis

Implementation of the strategic goals in the area of research:

1. Internationalisation of research as a key to synergies and cooperation

Also in the field of research, internationalisation is closely connected to quality improvement. This objective ought to be reached by reinforcement of international cooperations and an increased exchange of scientists. The following measures can improve the visibility of the VUW in an international context:

- Increased participation in scientific conferences
- Involvement in international research programmes
- Organisation and realisation of international conferences and workshops
- Increased publication activity in leading international journals

- Creation of doctoral scholarships and Marie Curie training sites by those institutes, which consider themselves as Centres of Excellence
- Evaluation of diploma and doctoral theses using internationally recognised criteria
- Creation of an international network of alumni and alumnae – also for fund-raising purposes

## 2. Interdisciplinary cooperations

The VUW extends its offer in terms of teaching and research into the field of ‘life science’. There already exist a number of cooperations with institutions of human medicine, agriculture, and (micro-)biology. There are intentions for further cooperation with national and international establishments. The extension of interdisciplinary international cooperation networks is yet another goal, with advanced emphasis on cooperations with countries in Central and Eastern Europe, as with third-world countries.

## 3. Increased mobility of scientific staff members

The exchange of staff members with foreign establishments shall be encouraged through increased use of sabbaticals, through an increased exchange of post-docs enhanced involvement of foreign doctoral and post-doctoral students in ongoing research projects and establishment of ‘vacancies’ for visiting professors. In this respect, it is noteworthy to mention, that there already exist agreements for the exchange of scientists’ e. g. with Utrecht, Zurich, Giessen, and Hannover, which should be further developed and extended.

## 4. Increase of publication rate

In the years 2002-2004 the VUW published 2,476 scientific papers. Supervisors ought to encourage the scientific offspring to write articles and support them therein. There is special emphasis on the publication in internationally renowned peer reviewed scientific journals (see Annex 6).

## 5. Facilitation of patents

The possibility to acquire one’s own patent rights has already been used. The VUW has submitted five registrations for patents so far. The office for Research Development and Innovation (FFI) ought to provide administrative and financial support to the researchers with registration and use of any patents.

## 6. Increase of fund raising from third parties / improved contacts to sponsors

A further goal of the VUW is the increase of financial funds provided by third parties. Good contacts to trade and industry can cover newly arising demands through appropriate developments as well as exploit new research trends at an early stage. The offer of new study programmes, e.g. of equine sciences and of biomedicine & biotechnology opens up new areas of research. Contacts to appropriate enterprises can lead to innovative research projects.

## 7. Formation of Spin-offs

The VUW encourages and participates in spin-off activities of its scientists. Since 2002, five companies (GmbH) have been established, with meanwhile about 80 employees and about € 3 million annual turnover and financial participation of the VUW.

It is a primary goal to aim at further commissions of spin-offs and to create the basic conditions for win-win situations. There is a plan to found one company per year with the objective that the company can act autonomously after five years. In the medium-term (within ten years) it should contribute to the financing of the university by a payment of 1% of the annual revenues.

## 8. Creation and extension of technology platforms

### *a. Technology platform and tissue bank for functional and comparative genome research in veterinary and laboratory sciences*

After decoding the genome sequence of man and mouse, the functional analysis of genes and gene-networks, respectively, is the focus of genome research in the international community. This requires a considerable extension of the repertoire of applied techniques as compared to mere sequence analysis. These techniques include morphological and functional classification of the phenotype of *in-vivo* and *in-vitro* models. Systematic approaches to comparative examinations of gene expressions of the messenger-RNA (transcriptomics) and at the protein level (proteomics) as well as the bioinformatic analysis of the thus generated data are the key technologies for the future of the genome research.

The establishment of technologies for the functional genome research is of strategic importance for the national and international competitiveness of the VUW and for raising of funds from third parties.

The following inter-departmental objectives are thus aimed at:

- Extension of the already successfully established platform for transcriptomics
- Establishment of a technology platform ‘comparative proteomics and metabolomics in veterinary and laboratory animal medicine’
- Construction of a resource centre for veterinary and laboratory animals: archiving and interdisciplinary use of animal tissues / samples with relevance to questions in the fields of veterinary and human medicine.

Along with the availability of the most recent methods for transcriptomic and proteomic analysis, the VUW can take steps towards developments, which are unique within Europe and even worldwide: material from clinical veterinary medicine and from experimental models could be used for functional genome research.

One assumes that such a constellation will lead to entirely new opportunities for national and international cooperation and to important impacts on research in human medicine. The VUW would thus become a pioneer within the range of European institutions for veterinary training in the field of functional and comparative genome research

### *b. Bioinformatics*

Together with the University of Vienna and the Medical University of Vienna, the VUW has obtained an endowment professorial chair for bioinformatics, which has been installed at the "Max F. Perutz Laboratories" on the Vienna Biocenter Campus (VBC). This facility will receive € 5 millions for the first five years from the WWTF. The professorship will be integrated in the ‘Molecular Technology Network (MolTechNet)’.

Such a chair is of special importance since the Vienna region, which plays an active and acknowledged role in the research field of molecular biology and biomedicine, has no organisation unit for bioinformatics holding a chair.

The technological developments in the field of biosciences have produced a great deal of data on genomic sequences and gene expressions over the last years, which are now expanded continuously by data on protein structures. By use of biological data bases compiled from highly complex biological data sets, methods of bioinformatics enable evidence of the biological function of genes, which is especially important in the case of disease-relevant genes. That is why bioinformatics is one of the fastest growing areas of research worldwide and of fundamental importance to biomedical research.

*c. Centre for clinical research*

The combination of clinic and paraclinic in the entire university area and the integration of the animal hospital into teaching and research is one of the central points for the development of the VUW. The creation of a research centre shall become possible through the foundation or rededication, respectively, of professorships in the following areas:

- Clinical research
- Clinical pharmacology
- Clinical bacteriology
- Clinical pathology
- Clinical nutrition
- Clinical virology
- Laboratory medicine

*d. Linear accelerator*

The optimisation of tissue extraction for cytological and histological examinations by use of US, CT, and MRT constitute the essential basis for an additional large project: the establishment of a linear accelerator together with other small animal clinics. This apparatus serves above all the radiation therapy of tumours, and the pain control, respectively. For the planning of the radiation it is necessary to exactly determine the position, extension and sensitiveness for radiation of the tumours. This is done through the computed imaging techniques of CT or MRT.

*e. SCINTIVET – Establishment of a centre for scintigraphy*

It is scheduled to create an inter-departmental centre for the performance of scintigraphy and radiosynoviocentesis in large and small animals and to establish an appropriate unit for experimental and clinical examinations at the VUW.

Focal points are:

- Tumour diagnostics
- Skeletal diagnostics
- Cardiodiagnostics
- Endocrinological diagnostics and therapy

The establishment of SCINTIVET aims at increasing the attractiveness of the VUW as a research institution for industrial partners and for partners both from outside and inside the university. The already existing cooperations in the field of performance and movement research could be deepened and new cooperations could be formed. Collaboration between SCINTIVET and the industry would be possible especially in the sector of experimental studies. In this field there are prospects of appropriate cooperations between the VUW and institutions of human medicine.

Up to now, there exists no comparable facility for animals at Austrian universities. The foundation of this centre for scintigraphy opens up new possibilities for cooperation with universities, industry and human medicine at national and international level and sets new standards for diagnostical and therapeutical measures for the patients of the animal hospital.

Active participation of students of the degree programme of veterinary medicine is optional. In principle, there are two possibilities for students in this area:

- a) As an institutional approach to research, students have the possibility to perform two out of six months of extramural work within the scope of the study programme at units, where they are involved in ongoing research projects. Extent, type and effort of the practical training depend on the respective research project. The activities within

this scope are full time for one month (40h/week). Usually students have to write a final report on their practical work, according to the requirements of the institution in question, which has to contain a description of the work performed and the results thereof.

- b) Students also have the possibility to take over various tasks within research projects, as so-called ‘student assistants’, with or without pay. The duration of employment depends on the research project or on individual arrangements, respectively. The extent of employment is usually about ten hours per week, but can be negotiated on an individual basis and can be as high as a full-time commitment. Normally the staff members keep a laboratory logbook.

In total about 13% (215 in the year 2004) of all degree programme students work in both kinds of assignments, with about 90% of them taking their first steps into scientific research as practical trainees (item a).

## 2. COMMENTS

Research-based teaching is the most important intersection between research and teaching in the degree programme at all. It conveys scientific approaches to problem solving.

Furthermore, there are only limited means or opportunities difficult to access for undergraduate students to tackle research in a practical manner during their studies. Where there is easy access (practical extramural work), time is strongly limited, and when the involvement might last for a longer period, there are only singular offers available (less than 1% of the students work in this area). At any rate, there is no exhaustive access to research projects for undergraduates to a sufficient extent. Furthermore, the involvement of undergraduates is strongly biased in favour of basic research and applied science in the pre- and paraclinical fields, whereas clinical research is *de facto* inaccessible for undergraduates.

## 3. SUGGESTIONS

The implementation of the new curriculum of 2002 accounts for this situation. The university admits its responsibility for the conveyance of knowledge required for the deepening and complementation of scientific pre-professional training to the students of the degree programme and of the qualification for professional activities, which necessitate the application of scientific findings and methods.

Under these aspects, the new curriculum already requires the compulsory composition of a diploma thesis. This is a scientific document to prove the capability to work on scientific topics on one’s own, both textually and by using adequate methodologies. This will ensure that each graduate of the VUW will have enjoyed scientific training to a certain degree to facilitate him / her to smoothly enter into a research project, whether in the professional life or in the scope of a doctoral programme.

In order to standardise diploma theses, internal guidelines were developed in the year 2005:

1. The requirements of ‘Good scientific practice’ (see official notification bulletin of the VUW, 22<sup>nd</sup> edition of 15 June, 2005) must be met in all possible constellations.

2. Diploma theses are possible in the following ways:

- Study with experimental and analytical core segment
- Retrospective study based on the evaluation of patient- or sample material
- Field study with appropriate statistical analysis
- Prospective study



- "Case report" (under the condition that the case needs to be exceptional, must include library work, consolidation of the patient's history and double check, discussion, interdisciplinary consolidation). This type must be suitable for scientific publication.
- Study of subject history (in collaboration with the representatives of veterinary history and of the subject in question)
- A series of related seminar papers

It is possible to carry out the work at an external institution in cooperation with a subject representative of the VUW.

### 3. Language

The diploma thesis can be written either in German or in English.

### 4. Structure of the diploma thesis and submission of the manuscript:

- Introduction and presentation of the problem
- Material / patients and methodology
- Results
- Discussion
- Conclusion
- If in English, including a summary; when the diploma thesis is written in German, including an extended summary in English
- Literature

Literature is quoted in alphabetical order of the first author. When there are several authors, it is sufficient to quote the first two authors with abbreviated surnames, followed by the publication year (in parentheses), the complete title of the publication, the journal (abbreviated or spelled out), volume, first and last page of the article; Analogous for books: there the pages containing the quoted article are to be indicated.

When referring to book chapters, the quotation of the chapter comes first, followed by the book authors (Ed., Eds.), title of the book, publishing company, place, first and last page of quotation. Within the text the quotations are in chronological order, with indication of the author (if necessary et al.) plus the year of publication.

Laws and decrees are quoted separately, in the text with their brief names and year of issue. Quotations from the internet must contain the author(s), the title and the file name and furthermore the exact date when this file was opened. In any case, internet quotations have to be presented in printed form in the literature portfolio. Tables and figures are numbered consecutively, with special reference to sufficient information in the legends.

Studies of subject history allow quoting by footnotes.

The diploma student must prepare a portfolio containing all quoted articles and text passages.

The presentation of the diploma thesis is to be done in form of a manuscript. In addition, this manuscript must be available as PDF file on an electronical storage medium (e.g. CD). It is sufficient to add voluminous data material (raw data) only in electronic form. The time scheduled for the diploma thesis including the planning period is three months (20 ECTS credits). Submission is possible at any time.

### 5. The process of planning

A working paper compiled before the start of the actual study needs to contain:

- Name of the diploma student
- Working title including a short running title
- Problem in question and outlining of working hypothesis (max. ten lines)
- Time frame

- Structure of the study (min. 25 lines, including specific statements)
- If applicable; additionally involved scientific staff members and their respective responsibility
- Statistics with responsibility
- Where do patients or samples come from? (if applicable including information on how many patients / samples with the same problems have occurred at the unit within the last three years)
- External collaborators with indication of the work share performed externally and the resulting costs.
- Critical points in the course of the study
- Estimation of costs; which services in terms of material or labour can be expected from the organisation unit?
- Dependence on possible application for funds; dependence on employment
- Publication of the diploma thesis at one's own expenses according to University Act UG 2002
- Further use: welcome are talks, further publication with naming of the authors (in order); guideline: when the diploma student composes the desired publication by himself/herself, he or she has to be first author, if not, the material shall be used for a publication, with the student becoming second author.
- The students are obliged to provide the raw data material in case the diploma thesis is not realised or written. After finishing up, the data need to be provided for further publications.
- Approval by the head of the unit (both at the department and additionally by the head of unit of the subject representatives or working group), is required if the planned activity will use substantial financial, spatial or work force resources or if the realisation seems uncertain in these aspects. The responsibility for the cost estimate is on the supervisor. The supervising unit should cover the publication costs.
- Statement if the study requires reporting or approval according to the Animal experiments' Act or if the study counteracts other rules or legal regulations.
- Signature of the student, the supervisor, and the co-workers according to item (6) as well as of the head of the unit.

The evaluation is done in writing by the supervisor and, if rated negative, by an additional subject representative holding the *venia docendi*. The time of the evaluation process is limited to no longer than two months. So-called supervisors within the system of internal quality control are responsible for securing the quality standards of diploma theses.

It is possible to compose a diploma thesis in subject-related connection to disciplines of the VUW at a different university or at a different relevant research site. However, this requires collaboration of a subject representative of the VUW.

The student has to collect all primary documents in an understandable manner (patient's histories, laboratory results, laboratory logbooks) and has to hand them over sorted to the relevant organisation unit after completing the study and prior to submission of the diploma thesis. It is explicitly pointed out to use copies and that there is an obligation of confidentiality.

The organisation unit is responsible for storing the documents for a period of ten years.

The diploma thesis can only be approved after the student has revised and finalised it following evaluation.

It is the student's duty to order a minimum of four copies (e.g. at the university's printing shop) in tacked form at the expenses of the organisation unit and to hand them over to this unit together with a copy of the diploma thesis in electronic format.

The assessment is in accordance with § 73 (1) University Act 02 with:

Very good (1), good (2), satisfactory (3), sufficient (4) or not sufficient (5).

In case of negative assessment by the supervisor, a second expert opinion has to be obtained.

Further publications are welcome; the student has to be listed as author, however, the position of naming depends on whether he or she has performed publication activities beyond the diploma thesis and on the relevance of the diploma thesis for the publication in question.

