

SELF EVALUATION REPORT





UNIVERSITY of ZAGREB

Faculty of Veterinary Medicine

Zagreb, 10 – 14 June 2013





European Association of Establishment for Veterinary Education

INSTITUTIONAL EVALUATION



JUNE 2013



A D D R E S S UNIVERSITY OF ZAGREB THE FACULTY OF VETERINARY MEDICINE Heinzelova 55, 10000 Zagreb, Croatia Phone: ++ 385 1 2390111; Fax: ++ 385 1 2441390 E-mail: fakultet@vef.hr

Dean: **Professor Tomislav Dobranić**, DVM, MSc, PhD Vice-Dean for education: **Professor Ksenija Vlahović**, DVM, MSc, PhD Vice-Dean for science and international cooperation: **Professor Alen Slavica**, DVM, MSc, PhD Vice-Dean for finances: **Professor Nenad Turk**, DVM, MSc, PhD, Vice-Dean for continuing education and quality control: **Professor Josip Kos**, DVM, MSc, PhD

CONTENTS

1	INTRODUCTIO	DN	
27	CHAPTER 1.	-	OBJECTIVES
33	CHAPTER 2.	2	ORGANIZATION
47	CHAPTER 3.	-	FINANCES
53	CHAPTER 4.	-	CURRICULUM
113	CHAPTER 5.	_	TEACHING AND LEARNING: QUALITY AND EVALUATION
139	CHAPTER 6.	-	FACILITIES AND EQUIPMENT
151	CHAPTER 7.	_	ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN
169	CHAPTER 8.	-	LIBRARY AND LEARNING RESOURCES
183	CHAPTER 9.	-	STUDENT ADMISSION AND ENROLMENT
193	CHAPTER 10.	-	ACADEMIC AND SUPPORT STAFF
199	CHAPTER 11.	-	CONTINUING EDUCATION
207	CHAPTER 12.	_	POSTGRADUATE EDUCATION
215	CHAPTER 13.	-	RESEARCH
219	LIST OF IMPO	RT	ANT DOCUMENTS

Abbreviations

ADP	Autochthonous Dairy Products
AMAC	Almae Matris Alumni Croaticae
AMC	Ambulatory (Mobile) Clinic
AMP	Autochthonous Meat Products
ARTERIab	Laboratory for equine viral arteritis. Department of Microbiology and Infectious Diseases with Clinic
ASHE	Agency for Science and Higher Education
AZVO	Agencija za znanost i visoko obrazovanje. Agency for Science and Higher Education
CAA	Croatian Accreditation Agency
CARNet	Croatian Academic and Research (NETwork)
CC	Current Content
CCD	Chair of the Clinics Division (head)
CDC	Clinics Division Council.
CEEPUS	Central European Exchange Program for University Studies
CFW	Clinical Field Work
CHI AMlab	Jahoratory for Chlamydia, Department of Poultry Diseases with Clinic
CIC	Computer Information Centre
CIUGS	Compute for integrated undergraduate and graduate study
CIPA	Council for Librarian and Publishing Activities
COST	European Cooperation in Science and Technology
COSL	Carcass Quality at the Slaughter Line
CROOF	Croatian Qualifications Framework
CS	Core Subjects
CVB	Croatian Veterinary Board
CVC	Croatian Veterinary Chamber
CVI	Croatian Veterinary Institute
CVR	Croatian Veterinary Record
DHTFS	Department of Hygiene, Technology and Food Safety
DS	Diploma Supplement
DSVS	Doctoral Study in Veterinary Sciences
DVM	Doctor of Veterinary Medicine
DZZP	Državni zavod za zaštitu prirode, State Institute for Nature Protection
EAEVE	European Association of Establishment for Veterinary Education
ECTS	European Credit Transfer System
EFC	Extended Faculty Council
EHEA	European Higher Education Area
ERA	European Research Area
EKO	European Qualifications Framework
ERASMUS	European Community Action Scheme for the Mobility of University Students
ESG	Standards and Guidelines for Quality Assurance in the European Higher Education Area
EU	European Union
EUA	European University Area
FAH	Study track Farm Animals & Horses
FC	Faculty Council
FL	Faculty Library
FP6	Sixth Framework Programme
FP7	Seventh Framework Programme
	Federation of Veterinarians of Europe
FVINUZ	Faculty of Veterinary Medicine
FVIVIUZC	Faculty of veterinary medicine Clinics
GE GDA	EXEVE GLOUP OF EXPERIS
	Anumeuc average Or passed examinations Unvately algorithmic analysis Creatian Accorditation Agencies
	Hords of Clinics
нц	Heads of Clinics Hard Haalth
	Hrvatski kvalifikacijski okvir. Croatian Oualifications Framework
HOFM	Hygiene and Quality of Fish Meat
HOGM	Hygienic Quality of Game Meat
НОРМ	Hygiene and Quality of Poultry Meat

HVD, CVS IAKlab ICT ISO ISVU	Hrvatske veterinarsko društvo, Croatian Veterinary Society Laboratory for Equine Infectious Anemia, Department of Microbiology and Infectious Diseases with Clinic Information and communication technology International Organisation for Standardisation Information System of HEIs
IUGUSVM	Integrated undergraduate and graduate university study of veterinary medicine
IVSA	International Students Association
LabNAM	Laboratory for Food Control, Department of Hygiene and Technology of Foodstuffs
LabT	Laboratory for Diagnostics of Trichinellosis, Department of Parasitology and Parasitic Diseases
LEPTOlab	Laboratory for Leptospirosis, Department of Microbiology and Infectious Diseases with Clinic
LIFE projekat	Environment - LIFE Programme
LMS	Nacionalni portal za učenje na daljinu, Learning Management System
MA	Ministry of Agriculture
MDAHE	Museum of the department of anatomy, histology and embriology
MOZVAG	Informacijski sustav za podršku postupaka vrednovanja, Information system for the support of evaluation procedures
MPA	Museum of pathological anatomy
MPC	Minimal Practical Competencies
MPRR	Ministry of Agriculture, Fisheries and Rural Development
MINISTRY (MZOS)	Ministry of Science, Education and Sports
	Museum of Veterinary Medicine History
NCHE	National Council for Higher Education
	Nacionalni centar za vanjsko vrednovanje oprazovanja, National centre for external evaluation of education
	Nacionalminiormacijski sustav prijave na visoka učinsta, National onime application system
	Nacionalna i svoučilična kazette
NIII	National and University Library
	Nacional and Oniversity Library
NV7	National Council for Science
OFW	Obligatory extraminal work
PCW	Professional Clinic Work
PDSVS	Postgraduate doctoral study in veterinary sciences
PSTU	Croatian Government and Public Services Trade Union
PUS	Postgraduate university specialization studies
PWL	Practical Work Log
QCS	Quality Control System
RH	Republic of Croatia
SAP	System Analysis and Program Development (programme for control of working processes)
SC	Student Centre
SCA	Study track Small Companion Animals
SER	Self evaluation report
SN	University Publishing Company
SOP	Standard Operating Procedures
SPFD	Strategic Plan of the Faculty Development
SRCE	Sveucilisni racunski centar, University Computing Centre
SRDM	Sredisnji registar državne mature, Central Registry of the State Matura Exam
51	Sveucilisna tiskara, University Printing-House
	Sociedas velerinaria Croatica
VDE	Vice Deap for Education
VEE-protocol	Programme for centralized management of ambulatory protocol
VetNFST	Veterinary Network of Student and Staff Transfer
VH	Veterinary Handbook
VIP	Vijeće za istraživanje u poljoprivredi. Council for Research in Agriculture
VPH	Study track Veterinary Public Health
WGSP	Working Group for Study Programs, UNIZG
WoS	Web of Science











INTRODUCTION

Please provide an outline of the main features of the history of the Faculty in the period since the last evaluation visit or, if there has not been a previous visit, in the last ten (10) years.

Historical Background

The history of the Faculty of Veterinary Medicine, University of Zagreb (hereinafter: the Faculty or FVMUZ) reaches almost a century into the past. The Faculty was founded in 1919 as the School of Veterinary Medicine in Zagreb (for more details see: http://www.vef.hr/opce/povijest). At the very beginning twelve departments were opened and study lasted eight semesters. Students enrolled in 21 obligatory subjects and had three state examinations, after which they acquired the academic title of graduate veterinarian. The School of Veterinary Medicine was renamed the Faculty of Veterinary Medicine on 7th December 1924, and became a constituent part of the University of Zagreb. In last ninety four years the Faculty was, and still is, the only higher education institution in the field of veterinary medicine that ensures the production of highly skilled veterinary professionals in Croatia. Over the mentioned period, a well-trained staff recognized the importance of scientific approach in the area of biomedicine and health, which is a precondition for research based teaching.

Today, the Faculty of Veterinary Medicine is a public institution of higher education within the University of Zagreb which organizes and conducts university studies, scientific and highly skilled work, in line with the recommendations of the EU Directive 2005/36/EC; Annex Ia of the European Commission (see Chapter 2). The Faculty is a legal entity with the status of a public institution entered into the Register of Higher Education Institutions (*Document: Class: 640-01/02-28/1*) administrated by the Ministry of Science, Education and Sports (*"Ministarstvo znanosti, obrazovanja i sporta*", acronym MZOS), Republic of Croatia (hereinafter: the Ministry or MZOS) as well as into the Register of the Commercial Court in Zagreb (*Document: Tt-03/8075-2 MBS: 080179720*).

The following levels of university studies are conducted at the Faculty:

- Integrated undergraduate and graduate university study of veterinary medicine (IUGUSVM);
- Postgraduate university specialization studies (PUS);
- Postgraduate doctoral study in veterinary sciences (PDSVS).

Above studies are organized according to the study programmes provided by the University Senate, on the proposal of the Faculty Council (FC). Teaching is held in standard Croatian, and with the approval of the Senate, it may be held partly in ar foreign language. Each level of the university study is completed by acquiring a specific title or degree.

The Faculty of Veterinary Medicine, University of Zagreb offers study programmes which are oriented towards the student, by integrating basic principles of scientific work, clinical training, professional standards and ethical values. Its aim is to apply the best educational methods and to recognize and reward the best students.

Since 2003, the legislative framework for the development of science and higher education in Croatia has been based on the few important laws/acts, as follow:

Scientific Activity and Higher Education Act ("Official Gazette" 123/03, 105/04, 174/04, 2/07);

- Constitutional Court Decision ("Official Gazette" 46/07, 45/09, 63/11);
- Law on the Croatian Science Foundation ("Official Gazette" 117/01, 45/09, 92/10, 78/12);

• *Law on Quality Assurance in Science and Higher Education* ("Official Gazette" 45/09) and the implementing regulations arising therefrom.

In addition to this legal framework, the scope of work of the Faculty has been determined by the provisions of the following:

- Law on Institutions ("Official Gazette" 76/93, 29/97, 47/99, 35/08);
- Veterinary Act ("Official Gazette" 41/07, 155/08, 55/11);
- *Statute of the University of Zagreb* from 2005, final draft of the *Statute of the Faculty of Veterinary Medicine* from 2012 and the implementing regulations arising therefrom.

Over the last decade, at the Faculty of Veterinary Medicine, University of Zagreb, there have been considerable changes in the organization of the institution itself, as well as in the transformation of the study programme. Specifically:

The Faculty of Veterinary Medicine, University of Zagreb has organized, implemented and monitored the following study programmes:

 On 2nd of June 2005, the Ministry (MZOS) issued **Accreditation** for the execution of a 6-year or 12-semester <u>Integrated undergraduate and graduate university study of veterinary medicine</u> to the Faculty of Veterinary Medicine, University of Zagreb. (Document AP/I 602-04/05-16/223). By completion of the study at least 360 credits are acquired. The study is conducted at the Faculty's main seat, Heinzelova 55, 10000 Zagreb. The acquired academic degree is Doctor of Veterinary Medicine (DMV).

The key features of the new curriculum are the three tracks of study which have been introduced and which the student may choose in the ninth semester of study, with a minimum of 4864 direct teaching hours, as well as 1807 indirect hours intended for self-directed learning and the minimum of 360 earned ECTS. All students are practically trained outside the Faculty, with approximately 546 hours per student and their performance is continuously supervised. Obligatory extramural work covers 8.2% of the total curriculum hours. In the final years of the study, numerous electives are offered covering around 20% of the total curriculum hours. Moreover, many subjects have been "verticalized" and this process improved vertical and horizontal integration of the curriculum.

The study programme provides students with knowledge and professional skills necessary for the success in clinical veterinary medicine, animal health and welfare, animal production, food safety and veterinary public health. This is achieved through integrated learning of basic and preclinical sciences, increased hours of practical clinical training, as well as through an introduction of obligatory subjects connected to one of the three introduced tracks, new electives and obligatory extramural work.

- The Ministry (MZOS) pursuant to Article 51, paragraph 2 of the Scientific Activity and Higher Education Act, and on the proposal of the National Council for Higher Education issued Accreditations for the conduct of 4-semester <u>Postgraduate university specialization studies</u> at the Faculty of Veterinary Medicine. In academic year 2011/2012 twelve (12) postgraduate university specialization studies (see Chapter 12) were running at the FVMUZ.
- 3. The Ministry (MZOS) issued **Accreditation** for the execution of the 6-semester <u>Postgraduate</u> <u>doctoral study of veterinary science</u> to the Faculty of Veterinary Medicine, University of Zagreb, Heinzelova 55, on 23rd of May 2008, for a period of five years. Upon the completion of the study, 180 credits are earned. The study is conducted at the Faculty's seat. A detailed description of doctoral studies is available on the Faculty's website: <u>http://www.vef.unizg.hr/nastava/postdip/index.php?adnce=d&m=e007ffc8fd7fe0</u>

Upon the completion of the study programme, the academic title Doctor of Science (PhD) is acquired. Together with the *Regulations on doctoral study at the Faculty of Veterinary Medicine* from December 2010, the PDSVS study is also conducted in accordance with *Regulations on doctoral studies University of Zagreb* which came into force on 28th of April 2010. These regulations stipulate the organization and conduct of doctoral studies, forms and duration of study, enrolment requirements, method of conduct, teaching and research, application procedure, grading and defence of doctoral thesis, rights and obligations of doctoral candidates, rights and obligations of mentors, methods of quality control and other issues related to organization and conduct of doctoral studies.

The publicity of the work of the Faculty is reflected in informing the public about its programmes, expected learning outcomes, awarded qualifications, teaching, learning and assessment methods and study opportunities available to students. In short, information on the Faculty's operations is intended for the public. The Faculty informs the public on its activity or part of activity through:

- The Faculty's website (<u>http://www.vef.unizg.hr</u>);
- The Faculty's periodicals (annual report: "The Chronicle");
- Annual reports of the University of Zagreb (University's Year Book).

The official website of the Faculty (www.vef.unizg.hr) is the basic form of informing the public on all of the Faculty activities. The primary purpose and objective of the website is to provide information and facilitate communication between the Faculty's staff, present, future and former students (at all levels) and cooperation with the public. It is also an important source of information for internal and external stakeholders involved in the promotion of quality assurance and control at the Faculty. The **C**omputer Information **C**entre (CIC) is responsible for the creation and proper working order of the website, which is also a technical assistance unit responsible for providing technical help during classes, maintaining computers, installing and maintaining programmes, maintaining other equipment used in practical training halls and lecture rooms intended for self-directed learning. Also, CIC technicians maintain the Faculty's computer network and network connections, as well as administering network operating systems and working with the users of **C**roatian **A**cademic and **R**esearch **NET**work – CARNET. Moreover, they format local domains, provide help during upgrading, provide data & new security programs on the Faculty's computers, define the visual identity of the FVMUZ website, 'back up' server data (student administration office, accounting, teaching) and plan installation of new hardware & software.

The main organizational changes

Here are the highlights of some very important events and changes that have occurred at the Faculty of Veterinary Medicine, University of Zagreb in the past 10 years (2002 to 2012):

European Association of Establishment for Veterinary Education (EAEVE) conducted an external evaluation at the Faculty from the 7th to the 13th of October, **2002**. The Faculty of Veterinary Medicine was one of the first constituent parts of the University to accept such an evaluation, in order to determine its position with regard to quality and teaching conditions, and also with regard to scientific and professional activities. Based on the written Self Evaluation Report (SER) and then during their visit, the members of the EAEVE **G**roup of **E**xperts (GE) gained an insight into all programmes and activities of FVMUZ, on which they based their report. In addition to teaching activities, the report contained quality evaluation of other areas of the Faculty work, as well as evaluation of overall organizational capacities. At the meeting of Education Committee of the *European Association of Establishments for Veterinary Education* (EAEVE) and *Federation of Veterinarians of Europe* (FVE) held on the 31st of October 2003 in Bruxelles, a final decision was made on putting the Faculty of Veterinary Medicine, University of Zagreb on the list of positively evaluated European veterinary faculties.

Between **2003** and **2005**, the main activities were carried out in two directions. The first was renovation and reconstruction of clinical part of the Faculty, and the second was reorganization of graduate and postgraduate studies. There were many reasons which led to the change in the Faculty's curriculum. The most important was the necessity to include new biomedical discoveries in modern veterinary education and the introduction of modern didactic methods in the education of veterinary experts who shall be ready to provide high quality veterinary services. Despite numerous, often conflicting attitudes, a final decision on the curriculum was made, which included changing the duration of study from five to six years (12 semesters), three study tracks included in the study and a single degree (see Chapter 4). In June 2005, the Faculty got Accreditation from the Ministry (MZOS) by which the new curriculum was accepted in accordance with the Bologna process.

The Faculty passed its first national evaluation in the evaluation process of higher education institutions by the National Council for higher education of the Republic of Croatia. From the 17th to the 19th of December, 2004, the Faculty was visited by an Expert Committee appointed by the Ministry (MZOS) of the Republic of Croatia. The committee gained an insight into all study programmes and the quality of their performance, and into the infrastructural base of training, adequacy of facilities and equipment for teaching purposes according to modern principles and requirements of the profession. Besides teaching, scientific research was evaluated as well. The Faculty received the National committee's proposed conclusion in a letter on the 12th of March 2005, and it responded to the submitted comments. The Faculty was issued **Accreditation** by the Ministry, recognizing that the study of veterinary medicine at the FVMUZ is carried out at the required level. By this recognition the process of evaluating the Faculty at the national level was completed. Based on the guidelines of the new Scientific Activity and Higher Education Act, recommendations of the EAEVE GE and the positive evaluation of the National Council for Higher Education, the process of reorganization the teaching began at the academic year 2004/2005.

The EAEVE GE report emphasized student overload with theoretical teaching, an excessive share of lectures, lack of individual student work, as well as the need to organize teaching and practical training according to animal species (groups). It is well known that in Croatia most veterinarians are employed in veterinary practices for large and small animals, veterinary inspection and public health and less of them work in livestock production, government and scientific institutions. The Committee for the reorganization of teaching, responsible for the proposal of the new curriculum, took all mentioned facts into consideration. The Committee for undergraduate education (Board for mentoring system and Board for graduation thesis) and the Committee for ECTS helped in the reorganization of the curriculum. Numerous working groups for each group of related subjects were organized within The Committee for the reorganization of teaching. The support for the extension of the study for a year was received after the Faculty had presented its future study curriculum to the University Senate, on the basis of which the Faculty Council, at its session in March 2005 adopted the proposal of the new curriculum based on a six-year study. According to the new, current study programme, the student has an opportunity to take basic animal production, preclinical and some clinical subjects in the first four years. In the last three years the students take part in theoretical and practical training in core clinical subjects, elective clinical subjects (based on the selected study track) and core and elective subjects in veterinary public health. For the most part, the aim was a coordinated distribution of theoretical and practical teaching of different groups of subjects.

In the period from **2005** to **2007** many organizational changes have occurred. In 2005 the new Statute of the Faculty of Veterinary Medicine was adopted. Immediate (IFC) and Extended (EFC) Faculty Councils were introduced and major organizational changes were implemented, the most important of which was founding of the four divisions of the Faculty:

- Basic Natural and Preclinical Sciences Division;
- Clinics Division;
- Veterinary Public Health and Food Safety Division;
- Animal Production and Biotechnology Division.

Organizational units of the Faculty were established in order to conduct teaching, scientific and professional work, to link these activities and to carry out professional & administrative tasks relating to the record keeping, preparation and coordination of classes, computing, communications and other tasks necessary for the smooth and successful operation of the Faculty. Details on the organization of the Faculty are presented in Chapter 2. A well-thought approach to the development of veterinary scientific activity also had an influence on the adoption of a new classification of scientific fields and branches in the Area of biomedicine & health care and in the Field of veterinary medicine. The National Science Council confirmed the four branches within the field of veterinary medicine by adopting new *Regulations on scientific and artistic areas, fields and branches* ("Official Gazette" 78/08).

The four branches are:

- 3.06.01 Basic and preclinical veterinary sciences;
- 3.06.02 Veterinary clinical sciences;
- 3.06.03 Veterinary public health and food safety;
- 3.06.04 Animal production and biotechnology.

Considering the fact that the University of Zagreb envisaged a relatively short period of time for the development and adoption of the new study programme, and that in some segments the instructions for the development were unclear, incomplete or delayed, the evaluation of the new graduate study programme began simultaneously with its implementation. Two committees were formed for that purpose: a Committee for the analysis of feasibility of core subjects and a Committee for the analysis of elective subjects. Apart from teachers, students were also members of the Committees. The tasks of the Committees were primarily to focus on the analysis of lecture quality in the first year of study and later, in the senior years as well. Certain difficulties related to the positioning of the subjects and prerequisites for the enrolment of the specific subject in vertical integration were noted. Additionally, organization of extramural work was a really demanding task. There was also a need for a better assessment of student workload according to credit system and for defining learning objectives for particular subjects more precisely.

In 2006/2007 we introduced into all of our Clinics and Ambulatory Clinic the use of computer "VEF-protocol" program for centralized management of ambulatory protocol. The program provides a single system operation of ambulatory protocols, billing services and issuance of uniformed bills for all Clinics with a detailed specification of services and materials spent. This led to a unified billing system and unified management of patients' files and medical findings.

In relation to scientific activity, the year 2007 was very important. A new cycle of funding research projects was started by the Ministry (MZOS). The Ministry accepted 44 Faculty research projects grouped in six programmes (see Chapter 13), which were financed over the five-year period (2007 - 2012).

Pursuant to the decision of the Croatian Government as the donor and the Faculty as the acceptor, the contract of donation was signed on 28th of September 2007, by which the Faculty was given agricultural land in Dugo Selo, "Črnovčak" field, total area of approximate 100 hectares.

An important innovation regarding the enrolment of students in the first year of study in the academic year 2007/2008 was the implementation of a new system of participation fees. The previous system under which there were students who studied at the expense of the Ministry (n=70 based on the priority list) and students who all pay the same fee 9240 kuna (\leq 1250) until the end of the study, was replaced by the new model of "linear participation". According to this model, the first 45 candidates study at the expense of the Ministry, those placed from 46th to 105th place pay the nominal fee of 154 kuna (\leq 20), increased by 154 kuna (\leq 20) for each place. From 106th to 125th place, students pay the full amount of 9240 kuna (\leq 1250). The new model also provides additional incentives for a better quality of studying,

such as making the priority lists for senior years of study, based on the achieved average grade and earned credits.

One of the factors in the Quality Control System (QCS) has been the introduction of Teacher evaluation survey. The QCS includes questionnaire for students from Integrated Undergraduate and Graduate University Study of Veterinary Medicine (IUGUSVM) and it is conducted through forms and according to the rules elaborated by the University of Zagreb.

In **2008**, based on the proposal of the Committee for graduate education and the Committee for quality control, the Extended Faculty Council (EFC) adopted amendments to the IUGUSVM programme. The amendments were approved by the decision of the University Senate. The implementation of the amended programme of the IUGUSVM began in academic year 2008/2009 for the first time.

In the same year a comprehensive application of Information System of Higher Education Institutions (*Informacijski Sustav Visokih Učilišta*, acronym: ISVU) also began. The ISVU has been designed as a transparent, integrated, operating system of higher education institutions which includes data of all students, academic staff and exams. By the end of 2008/2009 all students studying under the Bologna process were included in ISVU. For this purpose new information systems (with two "Studomat" servers for "on-line" registration and check-in of exams) and sufficient number of new computers and printers were acquired. Training of teachers and administrative staff was organized as well.

In academic year 2008/2009, in accordance with the Strategy for e-learning of the University of Zagreb and new teaching methods, the Faculty began with more intensive activity in introducing e-learning in the educational process. In May 2009, the Faculty signed Agreement on cooperation in e-learning with the University of Zagreb biomedical group of faculties (Faculty of Pharmacy and Biochemistry, School of Medicine and School of Dental Medicine) with the aim of organization, promotion and coordination of e-learning. At the end of the academic year, the required software, adapted to the Faculty's programme ("Moodle system"), was installed on the FVMUZ server. Furthermore, students were able to use *e-portfolio* system of the School of Medicine, which enabled direct communication and exchange of knowledge between the students of the two faculties in the software environment adjusted to them.

During 2008, a Catalogue of knowledge and skills in core subjects of the IUGUSVM programme was made. It includes a comprehensive list of knowledge and skills with proficiency levels, which the student must acquire during the attendance of undergraduate and graduate study of veterinary medicine. Drafting of this document allowed a precise definition of specific learning outcomes for these programmes. Therefore, immediately after the completion of the catalogue, the work on the formulation of learning outcomes at the level of obligatory subjects began. Concurrently, the University organized workshops on ways of defining learning outcomes at the undergraduate and graduate level, which, among other things, provided a clearer picture on the importance of their preparation as a valuable instrument of quality assurance in higher education. Simultaneously, most attention has been devoted to the modification of the study programme with regard to the changes which ensure that "Day-One skills" would be obtained by the time of graduation.

The second external evaluation of the Faculty at the national level by *Agency for Science and Higher Education* (ASHE) started as well. A Self-evaluation report was prepared, and it was adopted by the Faculty Council after a lengthy discussion at all divisions, clinics and departments.

In 2008 accreditations for the execution of university specialization studies and for the doctoral study of veterinary science were obtained.

The period from **2009** to **2011** along with regular academic, scientific and professional activities, was marked by numerous other activities among which were: the adoption of the new Statute of the Faculty in November 2011. Since the old Statute was adopted in 2005 and distinct normative activities in the area of science and higher education were taking place in the mentioned period, this resulted in a series of amendments to the existing Acts and regulations, as well as the adoption of new ones. The development of the new Statute required a systematic harmonization with applicable regulations, of which we mention only a few. Also, Standards and guidelines of quality assurance of the EU Higher Education Area needed to be incorporated in the Statute as well as other legal acts in the area of European legislative. The next step was drafting and adoption of the new Statute of the Faculty of Veterinary Medicine and of a series of implementing regulations. The Committee for the Statute and Secretary's Office suggested a number of initiatives and conducted a series of activities related to the preparation of the document. The Committee analysed the competences and number of the standing committees of the FC and conclude that the competences of some committees sometimes overlapped, while the competences of others were not in compliance with applicable regulations. The new Statute was needed to reform the Faculty Council (FC) completely, as a managing and professional body by eliminating the dual mode of sessions. In accordance with aforementioned new Statute eliminated Immediate (IFC) and Extended (EFC) Faculty Councils and, in the end, this course of action has contributed to the effectiveness of the FC. The new Statute reinforced the role and responsibility of Heads of Divisions and promoted Divisions as main organizational units.

For the first time, obligatory extramural work was organized for students who attended the 6th year of study. For that purpose, the Faculty signed about fifty contracts on cooperation with other veterinary institutions and other institutions for the conduct of obligatory extramural work.

The Faculty established criteria and enrolment periods on the part of the University and Faculty, for the proposal of admission quotas for each academic year. Student enrolment in the Faculty is conducted at the national level through the state high school final exam.

The Faculty determined examination levels at the Final State High School-Exam (FSHS-EX) for all candidates who wanted to enrol in the Faculty in academic year 2012/2013, which were also accepted by the

University and were published in the printed form for that purpose:

- Test in Croatian, level A instead of level B;
- Test in Maths, level B;
- Test in a foreign language, level A instead of level B.

The Student Office and the Office for assistants and technicians were founded. The mentoring system for the 1st year students of integrated undergraduate and graduate study of veterinary medicine were reintroduced.

In December 2010, the first evaluation of reported labs by experts from Croatian Accreditation Agency (CAA) was carried out. After the completion of accreditation and correction of observed incompatibilities, the laboratories listed below became accredited. All six laboratories were accredited in the field "Laboratory diagnostics in the field of veterinary medicine" and "Microbiological examination of food" on 27th of April 2011. Accreditation certificate was issued for a period of five years, with obligatory annual control procedure ruled by CAA.

Diagram 1: Laboratories within the accreditation system at the FMVUZ



The six accredited laboratories are:

- Laboratory for Equine Viral Arteritis, Department of Microbiology and Infectious Diseases with Clinic (ARTERIab);
- Laboratory for Leptospirosis, Department of Microbiology and Infectious Diseases with Clinic (LEPTOlab);
- Laboratory for Equine Infectious Anemia, Department of Microbiology and Infectious Diseases (IAKlab);
- Laboratory for Food Control, Department of Hygiene and Technology of Foodstuffs, (LabNAM);
- Laboratory for Diagnosis of Trichinellosis, Department of Parasitology and Parasitic Diseases with Clinic (LabT);
- Laboratory for Chlamydia, Department of Poultry Diseases with Clinic (CHLAMlab).

In academic year 2010/11 the Ministry of Health approved the pre-exposure vaccination against rabies for students and staff of the Faculty of Veterinary Medicine Clinics by obtaining 1000 doses of rabies vaccine at the expense of Croatian Institute for Health Insurance.

We introduced into our work a computer programme which allows automatic obtaining of data for the calculation of teaching load, reports on the teaching activities for each teacher, department, clinic,

chair and the Faculty as a whole. It enables the creation of a portfolio for each teacher. It is based on a database which is directly linked to a detailed schedule of lectures, personnel data and the data entry on teaching process.

Evaluation of the university textbooks and other teaching material has been carried out in accordance with *Regulations on university instructional literature*, University of Zagreb from 2011. A sufficient number of copies of required and additional literature (in printed and/or digital form) have been secured. In the period from 2006 to 2011, 24 new books were published (see Chapter 8).

From May to July 2012, regular annual verification of compliance between the Faculty and the standards of **A**uthentication and **A**uthorization Infrastructure of Science and Higher **Edu**cation in Croatia - AAI@ EduHr was carried out. It was established that the Faculty met the required standards and a Certificate was issued by University Computing Centre, Zagreb (SRCE) – **Certificate** of compliance with the standard-sAA@EduHr (Document: class: 030-03/12-01/4, Reg. no: 251-61-01/139-12-2).

New regulations relating to teaching

In the last decade, Croatia has become gradually involved in European processes, starting from the signing of Bologna declaration in 2001. In this context, basic documents for legal regulation of higher education in Croatia were adopted:

- Scientific Activity and Higher Education Act (hereinafter: the Act) in 2003;
- *Quality Assurance in Science and Higher Education Act* in 2009.

By implementing the Act and the new Statute of the University from 2005, the University has expedited the process of functional integration and has begun reorganizing its structure and management in the past period. In 2005 the Faculty adopted its own legal document, the Statute of the Faculty of Veterinary Medicine which specified the grounds for regulating the teaching process at the Faculty. The Faculty put the emphasis on the development of university study programmes, especially those at the undergraduate and graduate level. The aim of the studies was to provide basic knowledge and general competencies after the implementation of undergraduate and graduate levels, as well as a high level of professional competencies, with emphasis on research-teaching model. Also, the programme is compatible with current international standards in improving higher education (the conclusions of the Sorbonne Declaration, Bologna Declaration, the Lisbon Declaration, the Prague Declaration and the Berlin conclusions). The programme is in line with the overall efforts for accession to the *European University Area* (EUA).

New regulations relating to teaching:

- In 2004 the Faculty acquired Accreditation, "determining that the study of veterinary medicine at the Faculty of Veterinary Medicine, University of Zagreb is carried out at the required level". Accreditation was issued by the Ministry of Science, Education and Sports on 31st of March, 2004 (*Document class: 640-01/04-86/1, Reg. no: 61-01/139-04-3*).
- In 2005 pursuant to the decision of the Faculty council of the Faculty of Veterinary Medicine, student workload at the graduate study was determined by ECTS system (*European Credit Transfer and Accumulation System (Document class: 640-1/05-130/1, Reg. no: 61-01/139-05-5),* (see details in Chapter 4, Subchapter 4.1).

The aim has been to put the students in the centre of the educational process, to apply modern teaching methods and information-communication technology. Special care has been taken with regard to student support in the educational process and to the formation of motivating learning environment. The implementation of the current curriculum of the study of veterinary medicine began in academic year 2005/2006, based on the Ministry's Accreditation. Adoption of the Faculty's legal document has supported the harmonization of educational activities:

- *Regulations on integrated undergraduate and graduate study*, from 22nd of October 2008, stipulating the study programme, enrolment into the study, organization of teaching, assessment of students, evaluation and effectiveness of teaching, student status and study regulations, participation of students in the work of the Faculty of Veterinary Medicine and all other issues relevant for the conduct and completion of the study. After that, the Extended Faculty Council (EFC) adopted:
- *Amendments to Regulations on integrated undergraduate and graduate study* from 10th of February 2010 stipulating a mentoring system for the 1st year students.

New regulations and decisions of the FC for the regulation and advancing of teaching were adopted:

- In 2005 we introduced a new method of recording all forms of teaching, of continuous individual work of each student and of each examination. This method has been supported through the information system. Our system – ISVU, is the Ministry's project and it was launched in Croatia in 2003 as part of the computerization of higher education institutions all over the country.
- In 2007 on the proposal of the Committee for education, precondition requirements for taking examinations were adopted. The EFC accepted the Decision on the precondition requirements for enrolling subjects and taking examinations (*Document class: 640-1/07-237/1, Reg. no: 61-01/139-07-9*) (see Chapter 5, Section 5.1.3).
- In 2008 the EFC adopted the Decision on the reposition of elective subjects in the current study programme from 1st to 12th semester (*Document class: 640-01/08-254/1, Reg. no:61-01/139-08-5*).
- In 2008 the second external evaluation of the Faculty at the national level by the Agency for Science and Higher Education was carried out, proposing to the Ministry issuance of Accreditation for the implementation of the curriculum of IUGUSVM programme.
- On 21 January, 2009, the EFC adopted the Decision on the implementation of a uniform way of grading students under the Bologna process (*Document class: 640-01/09-273/1, Reg. no.: 61-01/139-09-3*); (see Chapter 5, Section 5.1.3).
- In May 2009, the Faculty signed Agreement on cooperation in e-learning with the University of Zagreb biomedical group of faculties (Faculty of Pharmacy and Biochemistry, School of Medicine and School of Dental Medicine) with the aim of organization, promotion and coordination of e-learning.
- During 2008, 2009, 2010, 2011 and 2012, EFC/FC accepted minor amendments to the curriculum (up to 20%), which the University of Zagreb also adopted (see Chapter 4, Subchapter 4.1).
- The content of the *Diploma Supplement* (DS) was defined on the proposal of the Committee for education and supported by the Decision of the EFC on 16th of June 2010. Diploma supplement was prepared in accordance with the "Instructions, rules and sample copies of diploma supplements" published by the University.
- With the entry into office of the newly elected management on 1st of October 2010, the Faculty had not yet completed the *Statute of the Faculty of Veterinary Medicine* (process of re-drafting commenced in 2007). Amendments to the Statute were adopted on 22nd of December 2010 at the second regular session of EFC, and on 25th of May 2011, the new Statute of the FVMUZ was adopted by EFC. The two Councils (IFC & EFC) were put out of force and one, single FC was recognized. After that, the same Statute was accepted by the University Senate on 22nd of November 2011 (*Document class: 012-03/11-01/13, Reg. no.: 251-61-01/139-11-2*).
- The Faculty also participated in the development of teaching in postgraduate university specialization studies and doctoral study. In this regard, the Faculty adopted two new legal acts during 2010: *Regulations on doctoral studies at the Faculty of Veterinary Medicine, Zagreb* and *Regulations on specialization studies at the Faculty of Veterinary Medicine, Zagreb*.
- The Decision on conditions for enrolling subjects and taking exams was adopted by the EFC on 16th of June, 2010 (*Document class: 640-01/10-305/3*).
- The list of "minimal practical competencies" acquired during practical clinical training included in classic clinical subjects and subjects: Professional Clinical Work (PCW), Clinical Field Work (CFW),

Ambulatory (Mobile) Clinic (AMC) and Herd Health (HH), was defined by the Committee for integrated undergraduate and graduates study and formally approved by the EFC in 2010.

- Conclusions on the implementation and syllabus of the sixth year of study, which includes obligatory extramural work and "clinical rotations" for obligatory subjects PCW and CFW were adopted by the EFC on 26th of January 2011 (*Document: Minutes from the 4th regular session of the Faculty Council, 26th of January 2010*).
- Decision on minor amendments to the study programme (up to 20%) and on regular modernization of subjects was adopted by the EFC on 25th of May and 27th of June 2011 (*Document class: 640-01/11-304/11 i 640-01/11-304/9*).
- Decision on the adoption of minor amendments to the study programme (up to 20%) of elective subjects and the position of electives through semesters was adopted at the FC session on 23rd of May 2012 (*Documen class:640-01/12-305/11*).
- Because of the implementation of practical clinical training of students, all clinical laboratories were equipped for different kinds of testing: pathological, histological, haematological, biochemical, mycological, parasitological and toxicological. The aforementioned was confirmed in a **Decision** signed by Vice Minister, on the proposal of the Expert Committee of the Veterinary Directorate, which is acting as part of the Ministry of Agriculture (MA). Confirmation was signed on 27th of April 2012 (*Document: Class: 640-01/12-284/2; Reg. no.: 251-61-01/139-12-6*).
- In determining the conditions relating to facilities, the aforementioned decision confirmed that Clinics of FVMUZ meets the specified requirements stipulated in *Regulations on the requirements for veterinary organizations, veterinary practice and veterinary services in the implementation of veterinary activities* ("Official Gazette" 45/09, 80/10, 153/11).

All mentioned above means that the study curriculum has undergone different improvements several times so far, in order to become gradually harmonized with the provisions of Directive 2005/36/EC of the European parliament and the Council of Europe on the recognition of foreign qualifications on September 2005. The recommendations of the Expert mission for the evaluation of the five regulated professions in the area of biomedicine and health care in Croatia were also taken in consideration. In this matter the improvements were made according to the provisions of the *Law on regulated professions and recognition of foreign professional qualifications* endorsed by Croatian Parliament in 2009 ("Official Gazette" 124/09).

New buildings or major items of equipment

In the past ten years, there have been significant positive changes in the part of the Faculty's property, especially in terms of reconstruction and adaptation of certain facilities and procurement of necessary equipment.

Thus, on the basis of strategic development of the Faculty and taking into account the instructions stated in the evaluation report from 2003, non-repayable funds from various sources were approved & realized in the previous period:

- In 2003 non-repayable loans of the University of Zagreb in the amount of 17,679,617 kuna (€ 2,357,282);
- In 2008 in the amount of 17,000,000 kuna (€ 2,266,667);
- In 2011, in the amount of 1 million kuna (€ 133,333);
- Support of the City of Zagreb for a capital investment in 2004 in the amount of 4 million kuna (€ 533,333) and between 2009 and 2012, 9 million kuna (€ 1,200,000) for procurement of equipment for "Veterinary Surgery Centre of Excellence";
- In 2011, support of the Ministry of Science, Education and Sports in the amount of 1 million kuna (€ 133,333);
- Support of the Ministry of Agriculture in the amount of 1 million kuna (€ 133,333);
- 27 % of the Faculty's realized income in the amount of 20,876,305 kuna (€ 2,783,507).

In addition to these funds, in 2007 the Croatian Government transferred the ownership of the land in Dugo Selo, total area of approximately 100 hectares and the estimated value of 1,038,455.64 kuna (€ 178,818.36) to the Faculty, in order to build the Faculty Farm & Educational Centre for practical training of students, continuing education of veterinary professionals and public education programs.

The received funds and part of the Faculty's realized income were used in capital investments and procurement of equipment.

The Faculty used the capital investments at the Faculty Farm and Education Centre in Dugo Selo to build an access road with adequate infrastructure for water, gas and sewerage in the amount of 2,229,761.52 kuna (€ 297,301.54).

In order to adapt the existing buildings and premises for the modern teaching process and to raise the professional and research potential of the Faculty, we began with the reconstruction and adaptation of the existing buildings and premises and procurement of equipment.

In renovation of Main lecture hall (full reconstruction + heating & air conditioning system, audio-visual surround system) the Faculty invested 3,765,533 kuna (€ 502,071).

Reconstruction and equipping of two clinics (Clinic of surgery, orthopedics and ophthalmology together with Clinic of Reproduction and obstetrics) has been also finished. Surgical halls are equipped with new, highly specialized capital equipment and the Clinic of Reproduction and obstetrics surgical hall for large animals (cattle) were renovated, together with surgical tract for small animals.

Significant construction has been done including the reconstruction and equipping of the necropsy hall. Multifunctional classroom for practical work at the Department of Fhysics has been reconstructed and equipped to satisfy the needs of all departments in Division of basic, natural and preclinical sciences.

In construction of the new building of a "Clinic for Infectious Diseases with isolation" the Faculty invests 8,200,000 kuna (€ 1,066,666.67) contracted within 2012.

In the past decade, the Faculty has invested a total of 48,426,717.09 kuna (\leq 6,456,895.61) in the reconstruction and adaptation of buildings and the building surroundings. From the total sum of six and a half million euros, 73% comes from the state budget loans, as well as the city of Zagreb loans and 27% comes from the Faculty's realized income.

A total of 26,180,216.37 kuna (€ 3,654,618.90) were invested in medical, laboratory, optical and other equipment. From total sum of three and a half million euros, 70% comes from the loan funds and the city of Zagreb financial resources and 30% comes from the Faculty's own revenue. The newly procured equipment has helped in modernization of the clinics, lecture rooms and practicums for students, as well as diagnostic and research laboratories.

Table 1: Investments in recostructions and adaptacion of buildings at FVMUZ during last decade

Account number	DESCRIPTION	Source	Purchase price (kuna)	Purchase price (EUR)	Amount 2012 (kuna)	Amount 2012 (EUR)
01111-11	INVESTMENTS IN AGRICULTURAL LAND "DUGO SELO"	BUDGET MINISTRY OF. AGRICULTURE	1,341,137.69	178,818.36	1,341,137.69	178,818.36
01112-11	BUILDING GROUND Road construction Dugo Selo	BUDGET credit	2,229,761.52	297,301.54	2,229,761.52	297,301.54
02123-11	BUILDINGS (reconstructions, adaptations, furnishing)	BUDGET credit, MZOS, UNIZG, City of Zagreb,	35,706,945.96	4,760,926.13	33,318,107.57	4,442,414.34
02123-21	BUILDINGS (reconstructions, adaptations, furnishing)	FVMUZ	12,719,771.13	1,695,969.48	11,785,725.93	1,571,430.12
	TOTAL CAPITAL INVESTMENT		51,997,616.30	6,933,15.51	48,674,732.71	6,489,964.36

Major equipment, acquired in the last ten years:

2003

Name of equipment:

- Flow cytometer eppics xl color
- · Color anesthesia monitor (sensor co2, module co)
- Electroscalpel martin me mb1 endo
- · Minicool 40 pc biotrak ii plate washer
- Minicool 40 pc + computer controlled centrifuge 5702
- Spectrophotometer helios gamma scanning uv/ vis
- Incubator co2,5.0 cu ft,220 v

2004

Name of equipment:

- · Laminar-flow 4 hood for sterile work
- Vertical autoclave (2 units)
- Lyophiliser alpha 2-4/lsc freeze dryer
- Mobile radiographic unit 7500 mobile digital c-arm
- Digester inko 1
- Ultrasound scanner, monitor, micro-convex probe, linear probe
- Inverted microscope
- Radiographic unit hyrai 100
- Blood analyser
- Buses for outpatient clinic teaching minibus marbus b4080ts
- Homogenizer with associated equipment
- Radiographic unit multix with associated equipment / polydor

2005

Name of equipment:

- Spectrometer helios beta
- Immunohystochemistry unit spector

2006

Name of equipment:

- Centrifuge 5702 r w/o rotor
- Toshiba ct scanner with associated equipment
- Sample preparation unit t g-prep
- Micro-osmometer osmomat 030

2007

Name of equipment:

- Ansthesia monitor with ventilator
- Laser cytometry unit lasercyte veterinary chemical analyser vettest 8008
- Laboratory histokinette tissue processor citadel 2000

2008

Name of equipment:

- Vertical autoclave 75l
- Tissue embedding unit cd 1000, thermal platform: hot plate ut 200, cold plate pf 100
- Pcr unit therman cycler with 0,2 ml pcr
- Microtiter plate reader
- Photometer biophotometer plus 100-240v and automatic pipette
- Incubator CO2
- Biopac bsladv –w system
- Microbiology laminar flow hood
- · Ultrasound scanner aqila vet endorectal probe
- Digestor general purpose

2009

Name of equipment:

- Hematology cell counter abcosp220eno1
- · Anatomical preparations equipment and supplies

- · Cold chamber rc9999 with associated equipment
- Mobile cold chamber unit eurtainer 6hm
- Blood gas analyzer vetstat
- Oscilatory saw acculan extension for hexagon burrs
- High frequency generator with control panel
- Cordless electric drill acculan 3ti, extension for burrs model 3ti
- Cordless trimmer acculan 3ti, battery model acculan 3ti, extension for ao burrs model 3ti
- Rotating anode tube imd/xr03
- Veterinary anesthesia workstation vms with artificial ventilator and gas vaporizer
- · Small animal anesthesia ventilator model 3000
- Portable anesthesia workstation
- Air driven drilling machine compact air drive ii with associated equipment
- V-shaped vet operation table
- Sterilizer 85 i with built-in vacuum pump
- Vital signs monitor fm light co2
- Aespire 7900 amartvent anesthesia workstation
 with hemodynamic monitor
- · Osteosynthesis implants and instrument sets
- Larynogoscope with blades, megal hospital washing machine for surgical instruments, slim electronic scale, surgical instruments box
- · Erg ophthalmic pulse measurement system
- Vetpro 1000 mobile dental delivery system
- Wall mount surgical lamp d 540w
- Endoscopy tower with instruments
- Orthopaedic instruments, tringa vet ultrasound scanner
- Hydromassage device
- · Phacoemulsification surgery equipment
- Microplate reader elx800pc
- Ultra low temperature freezer vip ult 220v
- Camera telecam with cold light source and associated equipment
- Orthopaedic swedged tool small,
- Orthopaedic swedged tool medium
- Shimadzu 10/13 gas cromatograph
- Co2 incubator
- Vital signs monitor b30
- Sterilizer 85 i with built-in vacuum pump

2010

Name of equipment:

- Veterinary hematology analyzer exigo
- Monitor and graphic recording instrument, cryoprobes holder
- · Ultra low temperature freezer 120 l capacity

2011

Name of equipment:

- Ceiling mounted surgical lamp with satellite bc
 e650+e650
- Anesthesia workstation for big animals
- Spectrophotometer aa-6300 system with associated equipment
- Digestor general purpose
- · Endoscopic system hopkins telescope
- Incubator biolab 190
- · Diagnostic workstation with recording system
- · Dicom image data processing and recording system

2012

Name of equipment:

- Ultrasound scanner mindray dp50vet
- Digitalizator cr 30-x
- Integrated hplc system
- Uv-vis detector
- Portable surgical system
- Digestor of general purpose
- Veterinary orthopedic set for self-locking screws
- Cryosurgical veterinary unit
- Electrosurgical generator with associated equipment
- · Lifepak 20e defribillator with associated equipment
- Vital signs monitor b30
- Cromophare e550 ceiling mounted surgical light
- · Sterilizer 4480-2vep model
- Villa genius hf x-ray generator
- Aespire 7900 anesthesia workstation
- · Demineralized water quality control device
- Autostainer plus for immunohistochemistry
- Electrosurgical platform
- Sinuscope tm 4mm, operating room surgical instruments
- · Telescope hopkins ii, 5mm , surgical instruments
- Food-borne pathogens molecular detection system
- Anesthesia workstation with vital signs monitor
- Ophthalmic ultrasound scanner pc
- Micro-convex array ultrasound transducer probe ca123

Main changes to the study programme

"Old curriculum of the Graduate study" from 1997/1998 was implemented at the Faculty of Veterinary Medicine, University of Zagreb, until academic year 2005/2006. The old curriculum was developed on the recommendation of the National council for higher education, based on the criteria set by the University of Zagreb. The study was primarily medical, with a strong biotech emphasis. The study lasted five years (10 semesters) and it ended with the defence of the graduation thesis. According to the University of Zagreb criteria, there were 4500 hours of teaching during 10 semesters. Elective and facultative subjects in certain proportion were included in the total hours:

- 70 to 90% of teaching of obligatory subjects, from 3150 to 4050 hours;
- 10 to 20% of teaching of elective subjects, from 450 to 900 hours;
- 5% of teaching of facultative subjects, 225 hours.

Graduate study included 32 obligatory, 50 elective and 6 facultative subjects. Depending on the regime of study, students could enrol all obligatory subjects, from 15 to 24 elective subjects and 0 to 6 facultative subjects.

At the Faculty of Veterinary Medicine, University of Zagreb, especially since year 2000, the curriculum and the teaching process have always been subject to serious and critical evaluation by Deans, Vice-Deans, Committees for graduate education, Committees for quality, divisions' heads, and other interested groups of teachers and students. Approach to the quality culture, mechanisms for QCS development, monitoring and evaluation have been based on self-evaluation and internal and external evaluation.

The new curriculum from academic year 2005/2006 was accepted after the Faculty had been evaluated and approved by EAEVE. Comments and recommendations made by the EAEVE GE in their report from 2003, and which were directly related to the curriculum chapter, were included in the new (and still current) curriculum. By then, it was already harmonized with the principles of the Bologna declaration (from June 1999). It is significantly different from the old one, and major changes refer to:

- 1. Length of study
- 2. Structure of the teaching process
- 3. Organization of the new core subjects
- 4. Division of large subjects into smaller units
- 5. Regime of study
- 6. Extended list of elective subjects
- 7. Introduction of three study tracks
- 8. Intramural clinical work at FVMUZ and obligatory extramural work
- 9. Improvements in the teaching of certain subjects based on the suggestions of the EAEVE GE
- 10. Improvements in teaching: quality and evaluation of students based on the suggestions of EAEVE GE

1. Length of study (including intramural and obligatory extramural work)

The new study of veterinary medicine at the FVMUZ is carried out as Integrated Undergraduate and Graduate University Study (IUGUS) lasting 6 years or 12 semesters. In Croatia, such an approach to the implementation of the study programme had to be brought in line with legislation, which was done on the Faculty's suggestion in 2007. The new *Veterinary Act* ("Official Gazette" 55/11) does not prescribe one year of compulsory veterinary practice and final practical exam for students who graduated according to the new 6-year programme. In accordance to the new model the Faculty has secured full time practical/ clinical and obligatory extramural work for each student under the guidance and supervision of competent persons during the study. This approach to the "Day-One skills" obtain by the study programme allows each candidate upon graduation to seek a licence from the Croatian veterinary chamber for the conduct of veterinary practice in Croatia.

2. Structure of the teaching process

See Chapter 4 - Curriculum, report of the EAEVE GE, 2003, under Subchapter 4.1 General aspects under Section Suggestions 4.1.3, under Suggestion 4.1., 4.4 and 4.7 (page 20). Chapter 5: Teaching: quality and evaluation under Section 5.1.1 Prior state, Section 5.2.1 under Subchapter Suggestion 5.1, 5.2, and 5.3 (page 38).

The aim of the reorganization was to define the Core Curriculum (CC) of the new study programme of Veterinary medicine in Croatia and to encourage the development of obligatory and elective subjects. Compared to the old study programme, the new one has been characterized by a reduced number of direct teaching hours (from 5640 hours to 4864). The new study programme has a better balanced ratio of theoretical and practical training hours. The aforementioned ratio has been achieved by reducing the number of theoretical in relation to practical training. Teaching in the new programme is based on problem-based learning and intended learning period. The programme includes 1807 hours focused on *Self-directed learning*. The number of Core Subjects (CS) taken by each students, from 1st to 6th year is 59 (obligatory subjects from the study tracks are excluded), while the number of electives is 72. Each subject is assigned a corresponding number of ECTS credits, allocated according to the main student activities and course workload. The ratio of time spent in different areas is balanced, and it has been strengthened by three study tracks which students can choose in the ninth semester of study. The last 12th semester is free of theoretical teaching and major part of extramural practical training is organized through subjects: PCW, CFW, AMC and HH.

Vertical and horizontal integration of the subject content has been improved, thereby providing the clinical subjects with greater support of the basic sciences. Teaching is conducted according to the syllabus of each core subject with defined learning outcomes. The quality and appropriateness of teaching methods have been systematically evaluated and improvements have been adopted each academic year by the EFC/FC. Teaching is partly conducted according to completely new principles - participation of teachers form different disciplines on one subject. This ensures greater competence of lecturers, especially in multidisciplinary areas and it eliminates unnecessary overlapping of topics. Moreover, teaching is conducted in smaller groups, which enable the teacher to devote more time to each student. Standard specification for the formation of a learning group is determined by existing regulations – lectures up to 150 students, seminars up to 30 students, practicum, lab and field practical training up to 10 students, clinical training up to 6 students and special clinical training (obstetric, surgical and internal) up to 4 students per teacher. Conditions for the mobility of students and information relating to the mobility have been ensured, in accordance with Regulations on the mobility of students, University of Zagreb, 2010. It can be concluded from the above, that there have been significant improvements in veterinary education since the last EAEVE GE evaluation, and that the proposals and suggestions given in the report of the GE in 2003, have been accepted in as much as possible extent.

3. Organization of the new core subjects

See comments and suggestions, EAEVE evaluation report from 2003 in Chapter 4 - Curriculum, under Subchapter 4.1 General Aspects Section Comments 4.1.2 and Section 4.1.3 under Subchapter 4.4 and 4.6 (page 20), in Chapter 4 - Curriculum, under Subchapter 4.2. Basic Subjects and Basic Sciences, Section Suggestions 4.2.3 under Subchapter 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16 (page 27). See in Chapter 4 - Curriculum, under Subchapter 4.1 General aspects under Section Suggestions 4.1.3; under Subchapter Suggestion 4.3 (page 20) and under Subchapter 4.3 Animal Production under Section Suggestions 4.3.3 Suggestion 4.15 (page 27).

Competent committees were in charge of the preparation of amendments to the study programmes and they discussed possibilities for their improvements. The new study programme includes fundamental changes compared to the old programme from 1997. The new study programme is based on the reaffir-

mation of general, basic and permanent theoretical knowledge that recline the profession. Taking these principles into account, contents of subjects were modified and as a result of the previously explained circumstances, they have reaffirmed and modernized traditionally primarily medical contents. Therefore, from 2007 to 2011 at the EFC/FC sessions, the aforementioned study programme was amended several times in accordance with University's decisions and general acts. Teaching is mostly problem-oriented on real clinical cases. Seminars motivate students to acquire competencies in problem solving. Main task of seminars is to encourage students in academic thinking, professional communication and teamwork. Increased hour load in 'hands-on' training during practical teaching rest solely on independent students' work, supervised by teachers.

The novelty in the study programme compared to the old one, is the reorganization of certain topics of veterinary medicine into new, obligatory subjects (Molecular Biology and Genomics in Veterinary Medicine, Botany in Veterinary Medicine, Zoology, Basic Statistics in Veterinary Medicine, Animal Breeds Characteristics, Histology and General Embryology, Environment, Animal Welfare and Behaviour, Veterinary Epidemiology, Propedeutics, Diseases and Treatment of Dogs and Cats, Diseases and Treatment of Pet Birds, Exotic Pets and Laboratory Animals, Diseases and Treatment of Horses, Diseases and Treatment of Farm Animals, Veterinary Public Health, Food Hygiene and Quality Control, Veterinary Legislation and Food Safety Control, Introduction to English Veterinary Medical Terminology I and II, HH, PCW and CFW).

Changes to the study programme, in addition to its modernization, easement and similar improvements, were going towards the development of a new and coherent national curriculum. This means that instead of the old, subject-fragmented curriculum, the new coherent curriculum based on interdisciplinary approach and vertical and horizontal connectivity of the study programmes, has been developed.

In order to perform these tasks, a framework of veterinary medicine basic education was formed through the following subjects through all 12 semesters: Anatomy with Organogenesis of Domestic Animals I, II and III, Histology and Embryology, Physiology of Domestic Animals I and II, General Veterinary Pathology and Special Veterinary Pathology, Pathophysiology I and II, Internal Diseases, Surgery, Orthopaedics and Ophthalmology I, II and III, Obstetrics and Reproduction I and II and Infectious Diseases of Domestic Animals. This framework was complemented with General Microbiology and Special Microbiology, Veterinary Immunology, Pharmacology and Toxicology, Parasitology and Parasitic Diseases, as well as Methods of Physical Therapy and Diagnostics, General and Clinical Radiology.

This kind of veterinary medicine basic education is grounded on the knowledge of premedical training offered in the following subjects: Molecular Biology and Genomics in Veterinary Medicine, Physics and Biophysics, Medical Chemistry and Biochemistry in Veterinary Medicine. During preclinical studies students take part in courses which educate students in a way that they get more familiar with primary objects of their work (animals) and etiologic factors of diseases. These subjects are: Environment, Animal Welfare and Behaviour, Animal Breeds Characteristics, Hygiene and Housing of Animals, Basic Animal Nutrition and Applied Animal Nutrition.

The collected and acquired professional knowledge and medical logic is the basis upon which specific knowledge on Poultry Diseases, Biology and Pathology of Aquatic Organisms, Biology and Pathology of Beneficial Insects, Game Breeding Management and Food Hygiene and Technology is further built up. Food Hygiene and Technology, in addition to clinical subjects has a special place in the final semesters of the study of veterinary medicine, which is clearly evident by the hour load. The number of hours may rise if we take into consideration the possibility of enrolling in one of the study tracks (VPH), which includes obligatory elective and elective subjects such as: Food Hygiene and Quality Control, Veterinary Legislation and Food Safety Control, Autochthonous Meat Products, Autochthonous Dairy products,

Hygienic Quality of Game Meat, Hygiene and Quality of Poultry Meat, Control of Meat Quality in the Slaughterhouses.

The study of veterinary medicine ends with the adoption of the contents of the following subjects: Veterinary Epidemiology, Veterinary Economics, Forensic Veterinary Medicine and Herd Health, which have a task to familiarizing students with the specific topics needed for understanding the procedures and performances in state administration and inspection.

Based on the achieved results of student evaluations, programme analyses, simulations and discussions, we have regularly revised the learning outcomes at required levels and where it were appropriate, incorporated them in the study programme in the form of amendments.

Student representatives were involved in the development of competencies and definition of learning objectives/outcomes. Students were, and still are involved in the monitoring and analysis of the teaching process in several ways:

- Students fill out the Faculty and University survey at the end of the study, along with special surveys for specific subjects;
- Student representatives are members of all committees and boards in charge of evaluation of control and improvement of teaching quality Committee for integrated undergraduate and graduate study;
- Student representatives are full members of the Faculty Council body which confirms all key decisions regards to teaching.

4. Division of large subjects into smaller units

The old study programme was based on two-semester, or even three-semester subjects, which were taken within one exam, and due to the complexity of the subject matter, they were too difficult for students. The new curriculum includes mostly one-semester subjects, which is one of the guidelines of the Bologna process. This allows students to follow the programme more easily, because teaching is partially organized in 'rounds' and after every cycle students can take exams. The subjects are not taken during the whole semester, but for a shorter period of time, and after the one subject ends, other subject starts according to the fixed timetable. In order to organize practical training in rotations, as well as the 24-hour participation of students in the work of the FVMUZ Clinics, clinical training is performed at the end of the study, in the last three semesters.

5. <u>Regime of study</u>

An important novelty in the study programme is the relationship established between the subjects as basic units of the study programme, and the study curriculum. The basic mechanism for establishing a "flow" of study is the mutual pre-conditionality of subjects: one subject might, or may not be a precondition for enrolment of another subject – in next semester, or year (see Section 5.1.3). This is why the category of precondition, which is in the description of each subject within a study programme, has become the most important element for understanding the regime of study. Certain subjects are the foundation for the understanding the content of other subjects. That is why subjects are taken in a prescribed logical order. Traceability is carried out in a way that students are not allowed to take exams unless they have fulfilled all the requirements. The study programme can be found on the Faculty's website as well as the implementation plans of the subjects (syllabus). The regime of study motivates students for intensive and continuous work, especially in supervised practical training and the "perpetum mobile" traceability mechanism guarantee a successful studying to those students who are ready to contribute indispensable time and appropriate effort.

6. <u>Extended list of elective subjects</u>

See Chapter 4 - Curriculum, EAEVE GE report from 2003, Section Suggestions 4.1.3; under Subchapter Suggestion 4.5 (page 20).

The novelty in the curriculum is that during the study, the student can enrol in elective subjects within 20% of the study programme. There are 72 electives in total and they are divided into two groups - elective subjects of free choice (Type 1), and elective subjects relating to the study tracks (Type 2). In the twelfth semester students may only choose among clinical electives. A few old electives have been retained from the old curriculum with an improved and revised content, and the new curriculum has been enriched with a greater number of completely new electives. The last changes were carried out in the academic year 2011/2012, new electives were introduced: Emergency and Intensive Veterinary Medicine, Principles of Agronomy, Agricultural Economics and Rural Development, Biological Traces and Evidence in Veterinary Forensics, Dietetics of Animals, Comparative Nutrition and Metabolism of Domestic and Wild Animals, Advanced Diagnostics and Therapy of Digestive System Diseases of Dogs and Cats, Diseases and Reproduction of Working and Sport Animals, Feed Additives – Health Modulators, Diagnostic Veterinary Cytology. In general, subjects are evenly grouped by years, with obligatory electives grouped topically in the fifth and the sixth year of study, while other electives have still remained free for students to choose through all the years of the study.

7. Introduction of three study tracks

Another novelty is that students are oriented towards specific areas of veterinary medicine during the study. This is achieved by choosing a desired study track and the corresponding elective groups of linked and free electives. Upon enrolment in the fifth year of study, the students decide on one of the three study tracks: Small Companion Animals (SCA), Farm Animals & Horses (FAH) and Veterinary Public Health (VPH). The knowledge which is provided within the study track can be achieved through theoretical and practical work in three different branches of veterinary medicine. In certain tracks, in senior years of study, by selecting subjects within various elective groups of subjects, students are able to choose a desired professional track according to their interests and needs. This structure of study will enable successful gathering of skills necessary for future work with small animals, work in a large practice and in the area of veterinary public health. <u>Still, it has to be stress out that all students received same, so called 'Single diploma' with different *Diploma Supplement* describing acquired skills. The choice of track than there are free places, more successful students have priority to enrol a desired track. The success is based on the earned ECTS credits and Grade Point Average (GPA) until the enrolment in the ninth semester.</u>

8. Intramural clinical work at FVMUZ and obligatory extramural work

See in Chapter 4 - Curriculum, EAEVE GE report from 2003, under Subchapter 4.1 General Aspects Section Suggestions 4.1.3; under Subchapter Suggestion 4.6 (page 20). In Chapter 4 - Curriculum, under Subchapter 4.4 Clinical sciences, Section Suggestions 4.4.3; suggestion 4.17 and 4.18 (page 32). Then, in Chapter 4 - Curriculum under Subchapter 4.5 Food Hygiene and Technology, Section Suggestions 4.3.3; under Subchapter Suggestion 4.23 (page 34).

According to the aforementioned concept (see article 2) the task of the IUGUSVM programme is to educate veterinarians who are primarily capable of working in modern veterinary practice, protection of herd health, animal husbandry, control of animal foodstuffs and other forms of veterinary services. In this study programme, the focus is on the clinical work and quality practical training through its various forms such as programming exercises, patient oriented work, student monitoring of patients dossiers. Consequently, the number of hours in clinical work has been increased compared to the old curriculum. This practical training is included in the last four semesters of the study. Only subject

Propedeutics starts one semester before (eight semester), to familiarize students with the knowledge required for classic clinical subjects as follow: Surgery, Orthopaedics and Ophthalmology, Obstetrics and Reproduction, Internal Diseases, Infectious Diseases and AMC. The AMC continues with practical training during 11th semester, after the students have taken clinical subjects. To provide teaching at FVMUZ with more practical training, subject PCW (120 hours) has been introduced as core subject, while CFW (180 hours) has been introduced in extramural work. Both subjects are obligatory for all students. Practical work in the form of rotations has been applied at Clinics, with full day and night rotations and practical teaching and students are intensively taught on different animal species on individual level, so they could be integrated in clinical work and could get relevant practical skills (see Chapter 4, Section 4.1.3 and 4.1.4).

For the first time, students attended the sixth year of study in academic year 2010/11, and obligatory practical work for all students was held outside the Faculty. We only want to remind that, until 2010/11, one year of compulsory veterinary practice and final practical exam was mandatory for all doctors of veterinary medicine (see article 1).

Practical education is additionally reinforced from the beginning of first year of study, during which students are offered 29 hours of practical outside teaching focused on handling and managing the main species of domestic animals. The number of hours of practical training increases with each year of study, and practical work is directed towards active participation of students under the supervision of teacher, as well as experienced practitioner (expert mentor). Thus, outside practical training is organized for second year students in the total of 22 hours, for third year 29 hours, fourth year 35 hours, fifth 121 hours and sixth year 339 hours, which makes a total of 546 hours per student from first to sixth year (see Chapter 4, Section 4.1.4).

Teaching bases for the implementation of obligatory extramural work are numerous veterinary organizations and the Croatian Veterinary Institute in Zagreb (*Hrvatski Veterinarski Institut*, acronym: HVI). The Institute and the Faculty regulated their cooperation in Agreement on the organization and provision of favourable conditions for the conduct of classes in the area of veterinary medicine. Considering the status of this teaching base, the fulfilment of all requirements for professional, scientific and educational work is understood. Within the Institute's departments and divisions there are adequate halls with teaching equipment, as well as different laboratories and necropsy hall. Signed agreements on cooperation with other veterinary institutions are presented in Chapter 5, Section 5.1.1.

9. Improvements in the teaching of certain subjects based on the suggestions of the EAEVE GE

What follows are the suggestions of the EAEVE GE on Anatomy subject(s), with explanations of the changes which have been made. The recommendations were presented by Chapters and Subchapters as stated in the Report of the EAEVE GE from 2003. According to the suggestions of the EAEVE GE, the teaching of *Anatomy* has been improved:

In Chapter 4 - Subchapter Comments 4.1.2 (page 18), comments referred to the inconsistency in the number of hours and organization of teaching of Anatomy on the example of osteology which was performed at the beginning of the study without an insight into its application.

The current teaching of anatomy of domestic animals is divided in three parts (anatomy of limbs, anatomy of the body and anatomy of the head and neck), each representing a topographic and functional unit. None of the systems of organs are taught in isolation, but the teaching is performed according to the areas of the body (including bone, muscle, vascular and nervous anatomic elements and organs within this area and their embryonic development).

In Chapter 4 - Curriculum under Subchapter 4.2 Basic subjects and basic sciences, the report of the EAEVE GE from 2003, Section Comments 4.2.2 (page 21) the comment refers to a large number of hours in practical training of anatomy which is based on descriptive anatomy with emphasis on the musculoskeletal system. In addition, it was stated that the teaching of histology had been neglected. Please note, that at that time, teaching was conducted through a subject called Anatomy, histology and embryology.

Today's number of hours in anatomy of domestic animals is divided into three subjects according to the above sections, and the total number of hours has been reduced, which has imposed a different approach to the organization of the curriculum. The reduction in the number of hours of anatomy teaching has led to adjustments in the volume of direct teaching, which is based on anatomical details according to the level of their clinical importance.

Musculoskeletal system of domestic animals is dominant only in the first part of practical training in the subject *Anatomy with Organogenesis of Domestic Animals I* which deals with locomotion. However, vascular and nervous elements have been incorporated in it, and they are taught according to their clinical significance. In the current study programme, histology is completely separated from anatomy.

In Chapter 4 - Curriculum under Subchapter 4.2 Basic subjects and basic sciences, of the EAEV GE report from 2003, Section Comments 4.2.2 (page 22) it was suggested that the curriculum of basic subjects should be clearly and closely related to their application in veterinary medicine. They mentioned the example of anatomy as the most comprehensive subject which "should lead students from the body systems towards the function and structure of organs by using topographic anatomy methods, live anatomy and applied anatomy".

The above proposal has been taken into account in formulating the new curriculum of anatomy based on functional body segments. Anatomy with Organogenesis of Domestic Animals I, teaches students about anatomy of limbs in terms of locomotion, practical training is conducted according to topographic anatomy and it is oriented towards traumatology and orthopaedics. In Anatomy with Organogenesis of Domestic Animals II students learn about anatomy of the body, including cavities and organs in the thoracic, abdominal and pelvic cavity. Subject is carried out according to the principles of topographic anatomy, by incorporating elements of clinical anatomy dealing with the position, spatial distribution and the functional relationships of vital organs. Anatomy with Organogenesis of Domestic Animals III teaches students about anatomy of the head and neck, based on topographic anatomy and except for the small musculoskeletal part. It mostly deals with clinically important body openings and cavities, senses, elements of ophthalmology and neurology. Applied Anatomy, except for the part that has been incorporated into obligatory teaching of the listed subjects, is taught to students in the sixth semester as an elective subject.

In Chapter 4 - Curriculum, under Subchapter 4.2 Basic subjects and basic sciences, of the EAEVE GE report from 2003, Section Suggestions 4.2.3 (page 23) it was suggested to develop teaching based on topographic anatomy and the use of clinical anatomy. A better ratio of teaching hours between anatomy and histology is suggested as well.

Transition to the new curriculum during the adaptation to the Bologna process, was done in the direction of complete organization of subjects according to principles of topographic anatomy.

In Chapter 6 - Facilities and equipment of the EAEVE GE report from 2003, Section Comments 6.1.2 (pages 44, 45) says that teaching of anatomy is oriented towards the use of dry preparations such as osteological preparations and compotes. The same comment was repeated in Chapter Animals and teaching equipment under Subchapter 7.2. The use of fresh or fixed bodies or parts of bodies was recommended.

The current teaching of anatomy almost entirely corresponds to the recommendations of the EAEVE GE. Topographic section, as the main teaching method, is carried out on bodies or parts of bodies of domes-

tic animals, fixed and preserved with a formalin solution. Whole bodies of cats, dogs and sheep are used as well as parts of bodies of horses and cattle. Skeletal preparations, compotes and fresh organs or parts of bodies are used in a lesser part, only when necessary.

According to the suggestions of the EAEVE GE, teaching of subjects in the field of area of radiation biology has been changed.

First, you will find suggestions of the EAEVE GE for course "Radiobiology and radiation hygiene" and then an explanation of the changes which have been made. Suggestions were drafted in Chapter 4 and Subchapters, as listed in the EAEVE GE report from 2003. According to the suggestions of the EAEVE GE, conduct of classes in radiobiology, radioecology and environmental protection has been improved:

In Chapter 4 - Curriculum of the EAEVE GE report from 2003, section 4.6.3. In Chapter 6 Facilities and equipment, Section 6.1.1, 6.1.2, 6.1.3 under Subchapter Suggestions 6.6.

Significant changes in the course "Radiobiology" were made in 2005, during the development of the curriculum of integrated undergraduate and graduate study of veterinary medicine. Led by the principles of the Bologna declaration and considering the recommendations of the EAEVE GE, modifications were carried out as follow:

- Facultative subject "Radioecology and Radiation Hygiene" was abolished;
- "Radiobiology" was renamed into "Radiation hygiene";
- Position of the subject "Radiation hygiene" was changed (from tenth semester into ninth semester and then into fifth semester in 2012);
- Teaching hours were reduced for a total of 15 hours;
- Content of the subject was changed (work with radionuclides was excluded from practical training);
- Work of Radioisotopes Laboratory for teaching purpose was terminated.

In Chapter 4 - Curriculum under Subchapter 4.3 Animal Production of the EAEVE GE report from 2003, Section 4.3.3; under Subchapter Suggestion 4.11, 4.12, 4.13 (page 27).

According to the suggestions of the EAEVE GE, new core subject *Veterinary Epidemiology* was introduced and Department for economics and epidemiology was founded. Core subject *Veterinary Epidemiology* has been part of the study programme since the academic year 2005/06. Until 2005/06, the subject was positioned in the third year and since 2012/13 it has been offered to the fifth year students. The aim of the subject is directed towards the application of epidemiological methods which are used in veterinary public health. *Biostatistics* (within *Basic Statistics in Veterinary Medicine*) has been part of the regular study programme offered to students since 2005/06.

In Chapter 4 - Curriculum of the EAEVE GE report from 2003, Basic Subjects and Basic Sciences Section Suggestions 4.2.3; under Subchapter Suggestion 4.8 (page 23). Also in Chapter 5 Teaching: quality and evaluation under Subchapter 5.1.

During the reorganization of the graduate veterinary medicine study programme, in 2005, subject *Pharmacology and Toxicology* (3rd year of study, with 75 hours of lectures, 60 hours of supervised practical training and 15 hours of seminars), was divided into two subjects: *Pharmacology* (5th semester) and *Toxicology* (6th semester). Teaching of *Pharmacology* is conducted in the form of lectures (44 hours), supervised practical training (34 hours) and seminars (4 hours) while *Toxicology* has 26 hours of lectures, 23 hours of supervised practical training and 5 hours of seminars.

Content of *Pharmacology* course was revised in terms of introducing new teaching units: introduction of seminars where we discuss the regulation of drugs and monitoring of drug application safety (pharma-co-vigilance), supervised practical training content has been enriched with practical application of drugs,

introducing students to computer pharmacokinetic programmes and simulations of drug action (animation of binding of the drugs to receptors). Live laboratory animals are no longer used in practical work. We use images which show the effect of drugs on rats and guinea pigs instead.

Toxicology course is designed in such a way that the course content is taught in three major sections: 1. Pesticide poisoning of domestic animals, 2. Heavy metal poisoning and 3. Poisoning by industrial pollutants, mycotoxins and other toxins. The listed topics are accompanied with exercises in analytical toxicology. Seminar topics complement the material in the field of venom animal bites and toxic effect of POPs, and they introduce students to nanotoxicology.

We have also introduced new obligatory elective subjects in the fifth year of study with five hours of teaching in the form of problem-oriented learning: Clinical Pharmacology of Small Animals, Clinical Pharmacology of Farm Animals, Clinical Pharmacology of Horses, Clinical Toxicology of Small Animals, Clinical Toxicology of Farm Animals, Clinical Toxicology of Horses, and 3 teaching units in the field of pharmacology and toxicology within Veterinary Public Health track. The purpose of these subjects is that the students in the senior years of study in their respective tracks apply their acquired knowledge of pharmacology and toxicology as well as of certain clinical subjects, to identification, assessment and treatment of certain diseases and poisoning of domestic animals.

Well developed e-learning, according to 2003 EAEVE recommendations, has been developed in the area of physiology. Following has been done for the purposes of improving the practical part of physiology:

- Acquisition of Biotech Student Lab which is necessary for quality, modern conduct of practical work and seminars;
- Acquisition of licence for Physio-Ex[™] 7,0 for Human Physiology which allows students to master, understand and link more easily complex physiological processes in the causal relationship, from the cell to the whole organism (physiology of the cell, nervous and muscular system, endocrinology, cardiovascular and respiratory system, physiology of digestion, bodily fluids and excretion, blood analysis), through computer simulation of laboratory analyses.
- Purchase of 10 microscopes which are used in teaching at the Department of Pathophysiology.
- 10. <u>Improvements in teaching: quality and student evaluation according to the suggestions of the EAEVE GE</u>

a) Teaching methodology

What follows are the suggestions of the EAEVE GE in connection with Chapter 5 – Teaching and learning: quality and evaluation:

See in Chapter 5 - Teaching and learning: Quality and Evaluation, EAEVE GE report from 2003 under Subchapter 5.1 Teaching Methodology and under Subchapter 5.3 Examination Section 5.2.1 and 5.3.3. Suggestions under Subchapter Suggestion 5.1, 5.2, 5.3, 5.4 and 5.5 (page 38).

Common standards for amendments to the content and form of teaching have been set at the Faculty and University level and they have been encouraged by the FVMUZ Committees. Amendments to the programme are adopted after discussion, at the Faculty Council (EFC/FC) sessions. Student opinions are also recognized (see Chapter 4, Subchapter 4.1). Learning outcomes are listed in the curriculum of each subject throughout the study. The use of audio-visual methods, telecommunication hall, e-learning (LMS system), IT equipment, smart boards, the Internet, multimedia, wireless network, different simulations and animations, tests in computer classrooms is part of regular teaching. Computer aided learning is also well developed in the areas where it is expected to be strongly present (statistics, pharmacology, physiology, veterinary epidemiology, etc.). Multimedia projections are possible in all halls where lectures, seminars and supervised practical training are held. Laboratories are adequately equipped for practical work of students (modern microscopes, centrifuges, freezers and other equipment of different kinds). There is a satisfying number of thoroughly refurbished lecture rooms and practical work halls and they are in accordance with the current number of students per year. More attention is being paid to the protection of health and safety of students, as well as all staff members and good laboratory practice (see Chapter 5, Section 5.1.5). In addition to teaching at the Faculty, there are lots of opportunities for practical teaching outside the Faculty, where animals are used as live models and students work in small groups under the supervision of a teacher. Practical work is carried out in small groups of 10 to 15 students (later they are divided to 5 students per mentor). Teaching of most subjects is problem-oriented and it motivates students to look for information and use it. Work in seminars in groups of up to 30 students is a good way to get students involved in finding, synthesizing and presenting scientific information.

Most of the teaching materials are in Croatian and English, mostly in the form of textbooks, web manuals or university manuals which have undergone peer review and were posted on the LMS system website or the website of the Department or Clinic. Teaching materials are prepared by the teachers themselves or they are recommended reading material available at the University level. Special attention is paid to the possibility of supply of adequate equipment and materials for programming exercises. The library and computer usage enable independent learning, and wireless network allows work on students' own computers (see Chapter 8).

Evaluation of teaching and teachers comes from the annual evaluation of teachers by the institution and the University, where students of all years fill in an anonymous survey. The University informs the Faculty on the results of the survey (see Chapter 5, Section 5.1.4).

Grading system is regulated by the Statute of the University, the Statute of the Faculty and Regulations on integrated undergraduate and graduate study at the Faculty of Veterinary Medicine. A decision on a equivalent method of implementation of student evaluation according to the Bologna process, was made at the Faculty Council (EFC) session in 2009 (*Document: Class: 640-01/09-273/1 Reg. No.: 61-017139-09-3*). Criteria, rules and procedures for testing and grading were determined in the aforementioned Regulations (see Chapter 5, Section 5.1.3).

The form of a written test only appears in 30.3% of the subjects, combined written and oral exam in 23.3% of subjects and oral only in 46.4%.

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

- (2003) Beginning of the reorganization of graduate and postgraduate education;
- (2003) Introduction of the mentoring system for 1st year students;
- (2003) Renewal of transportation unit purchase of two new buses for the Mobile Clinic;
- (2004) The Faculty re-entry in the Register of scientific organizations and the Commercial court Register of Institutions;
- (2004) First external evaluation of the Faculty at the national level by the Ministry;
- (2005) The Faculty council adopted ECTS credits for core and elective subjects;
- (2005) Beginning of the implementation of the new study programme adopted by the Ministry;
- (2005, 2010, 2011) Adoption of the Statute of the Faculty of Veterinary Medicine University of Zagreb, amendments, and the final version of the Statute;
- (2005) Inclusion of the Faculty in the Information system of higher education institutions (ISVU) on a level of the University;
- (2005) Inclusion of the Faculty in Module for Higher Education and the Agency for Science and Higher Education (*MOdul Za Visoka učilišta i AGenciju za znanost, acronym: MOZVAG*) server & browser software for tracking the scientific activities;

- (2006) First student survey on the evaluation of the work of teachers and quality of the study;
- (2007, 2008, 2009, 2010, 2011 and 2012) Adoption of the curriculum changes up to 20% (maximum percentage of allowed changes determined by University);
- (2007) Introduction of a new system of participation fees covered by the Ministry;
- (2007) Introduction of new computer software ("VEF protocol") at the Faculty's Clinics for the central administration system of patients;
- (2008) Adoption of Regulations on integrated undergraduate and graduate study of veterinary medicine;
- (2008) Second external evaluation of the Faculty by the Ministry (MZOS) at the national level;
- (2008) The Faculty ensures periodic evaluation of the study programmes every five years by external evaluators at the national level, in order to provide detailed insight into the quality of work to determine whether the Faculty has met the requirements for the extension of Accreditation (see Chapter 4, Subchapter 4.1);
- (2008) Adoption of the Catalogue of knowledge of core and elective subjects by the EFC;
- (2009) Activation of the e-learning system *Learning Management System* (LMS) on the Faculty's server;
- (2009) Signing the Agreement on cooperation in e-learning with the University of Zagreb Biomedical group of faculties;
- (2009) The Faculty has established the *Committee for quality control* body which take care of quality assurance and improvement of FVMUZ Quality Control System (see Chapter 2);
- (2009) For the first time, since the founding of the Faculty, upon enrolment in the fifth year of study, the student have the opportunity to choose one of the three study tracks (Small Companion Animals (SCA), Farm Animals & Horses (FAH) and Veterinary Public Health (VPH) (see Chapter 4, tables 4.3 b, b and c);
- (2009) Beginning of organization of practical extramural work (defining the list of Practical skills);
- (2009) Upgrading of computer software ("VEF protocol") for recording students work at Clinics;
- (2009) Adoption of the Catalogue of knowledge and "Day-One skills" with learning outcomes for the study programme of core subjects;
- (2009) Adoption of the Information package of the FVMUZ, by the EFC;
- (2010) Introduction of the Final State High School-Exam (FSHS-EX) on the national level as a precondition for enrolment in the Faculty;
- (2010) Establishment of the Office for international cooperation;
- (2010) Adoption of Regulations on doctoral study and Regulations on specialist studies;
- (2010) The last 12th semester is entirely dedicated to obligatory practical/clinical training (rotations in classic clinical subjects, night duty and obligatory extramural work);
- (2010) Appointment of the Council for doctoral study and Council for specialization studies;
- (2010) Contents of the Diploma Supplement adopted by the EFC;
- (2010) Support systems have been provided to students and mentors who monitor students were appointed. The Student Office which has an advisory role, from enrolment until graduation was established (see Chapter 5, Section 5.1.5);
- (2011) List of minimal practical competences adopted by the EFC;
- (2011) Activation of the computer programme for automatic retrieval of teachers' workload;
- (2011) Upon completion of the study, FVMUZ issued the *Diploma Supplement* (DS) for graduates;
- (2011) Implementation of extramural work of students;
- (2011) Signing of agreements with veterinary institutions for the purpose of implementation of extramural work;
- (2011) Introduction of night attendance for students in the 7th semester of the study;
- (2011) The computer program ("VET protocol") for archiving patient records has been upgraded to help students and staff to retrieve particular cases and to link students with the number of processed patients, easily providing 24-hour "case-load" for clinical work (see Chapter 4, Section 4.1.3);
- (2011) Establishment of the Office for assistants & technicians;
- (2011) Pre-exposure vaccination against rabies ensured for all students at the Faculty;

- (2011) Accreditation of six of the Faculty's laboratories by Croatian accreditation agency;
- (2011) Beginning of construction of Clinic for infectious diseases with isolation;
- (2011) The University of Zagreb issued approval for the Final draft of the *Statute of the Faculty of Veterinary Medicine;*
- (2012) Inclusion of the Faculty at the University level in the development of SAP (Solutions, Applications & Programs in B&M) programme;
- (2012) Adoption of the new model of participation of students in the cost of study;
- (2012) For the first time since the founding of the Faculty, the FC has adopted the Strategic plan of the Faculty development for the period of five years (2012-2017), with an option for a long term planning of FVMUZ development up to 2020.

Major problems encountered by the Faculty, whether resolved or not

- Lack of public funds (mostly) for research and teaching became critical during 2009 as a result of global economic crisis and recession which has also affected the Republic of Croatia.
- Reduced investment in education and science in general, as well as politically imposed decisions have had a negative effect on management and organization of the FVMUZ.
- The Ministry of Science, Education and Sports of the Republic of Croatia has the right to supervise the work of the University of Zagreb. Financial resources which ensure normal operating of the University are allocated by the Ministry (MZOS) and transferred to other universities.
- From a position of administrative services, the work of the Faculty is burdened with obtaining considerations, permits and compliances from the executive authorities. Administrative procedures are lengthy and therefore inefficient.
- Because it is very difficult to gain approval for new job openings, the development component of certain areas in veterinary medicine, as recommended by the EAEVE GE during the last evaluation, has been stopped. This has been particularly evident in the last three years, since the beginning of the crisis and recession. We expect to solve the problem of the job position openings with Croatian accession into the European Union. The Faculty staff members have shown strong dedication and awareness of the need for continuous improvement and the need for ensuring reliable basis for working with students, having in mind fact that FVMUZ is the only Veterinary Faculty in Croatia.
- The Faculty is, and it should remain, a leading educational institution in the Field of Biomedicine and Health Care, one of the biggest and most influential academic institutions in the country and one of the key constituent parts of the Zagreb University. It is expected for the Faculty to retain and reinforce its influence in the neighbouring countries and international community, especially in the context of Croatian accession to the European Union. With very positive experiences in national, regional and international practice in the area of teaching and education, FVMUZ has recognized that the current situation requires certain changes that are already in progress (see SPFD). In accordance with the "One health" initiative it is necessary to bring even more Faculty's associates and teachers in public health (PH) courses, closer to PH practice. Furthermore, they should become the leading decision-makers in Croatian PH-policy. That is why the Faculty strives to connect more closely with Public Health Institutions in Croatia.
CHAPTER 1. OBJECTIVES







Chapter 1. OBJECTIVES

1.1 FACTUAL INFORMATION

Indicate whether there is an official list of the overall objectives of the Faculty. If this is the case, please indicate these.

The Faculty of Veterinary Medicine is a constituent part of the University of Zagreb – UNIZG (see Chapter 2). The University adopted its Development strategy for the five-year period (2008- 2013), which is in accordance with the *Lisbon strategy* from 2000 and the revised document from 2005, as the key strategic document of the European Union.

Development strategy of UNIZG is based on following documents:

- Strategic development framework 2008-2013;
- *Science and technology policy of the Republic of Croatia 2006-2010,* which were adopted by the Government of the Republic of Croatia in the beginning of 2006, and amendments were adopted in the beginning of 2010;
- Action plan 2007-2012 Science and technology policy of the Republic of Croatia adopted by the Parliament in June 2007;
- Action plan to encourage investment into Education, Science and Research adopted by the Parliament in April 2008;
- Recommendations based on the discussion on Innovation, Research University and Knowledge-based Enterprise adopted by the Croatian Academy of Sciences and Arts (<u>Hrvatska Akademija Znanosti i</u> <u>Umjetnosti</u>, acronym: HAZU) in April 2008.

These documents contain the plan and recommendations for the development of higher education, science and technology in the Republic of Croatia. The indivisibility of quality teaching and scientific research is the basic determinant of all constituent parts of the UNIZG, including the FVMUZ. Even though the research strategy of the University as a whole is important, it is of equally importance that each constituent part determines its teaching and scientific strategy, and defines its research priorities based on demonstrated teaching & scientific excellence.

The Faculty adopted its five-year Strategic plan of the Faculty development for the period 2012-2017, in which development guidelines for the five principal areas of strategic planning have been outlined (*Document class: 012-03/11-01/13, Reg. no: 251-61-01/139-11-2*). The main activity and purpose of the Faculty of Veterinary Medicine is the education of veterinarians (DVM - Doctors of Veterinary Medicine) through completion of 12 semesters IUGUSVM programme. Basic legal act that regulates the Faculty activity is the Statute (see Chapter 2) endorsed by the University Senate (*Document class: 012-03/11-01/13, Reg. no.: 251-61-01/139-11-2*). The process of adopting the Statute in 2011 required a developing of new regulations acts (14 regulation acts have been adopted so far, seven regulations are still in progress).

Since 2005, the implementation of the six-year study programme for a doctor of veterinary medicine has been one of the general objectives of the Faculty. List of General Objectives of FVMUZ is public-available information that has been revised and published on the Faculty website http://www.vef.unizg.hr/ each academic year within the Information Package of the Faculty of Veterinary Medicine (*Informacijski paket Veterinarskog fakulteta*, acronym: IPVF). Other regulations are also available on the same website. The main objective of the Faculty is to continue its development through the improvement of teaching, scientific and professional activities which would, along with the establishment of the QCS (Quality Control System), guarantee the improvement of results of the Faculty core activity. The curriculum has been

continuously aligned with other European higher education veterinary institutions in accordance with the recommendations of EAEVE, while maintaining its own specific characteristics arising from the actual needs of veterinary medicine in the Republic of Croatia. The programme of the Faculty is in accordance with the mission, vision and the objectives of the institution, and the development opportunities are in accordance with the set strategic objectives and current legislation. By accomplishing the set objectives, FVMUZ would position itself as a leading higher education institution in the region in the field of veterinary medicine.

The adopted Strategic plan of the Faculty development (2012-2017) is based on defining the five main areas of strategic planning:

- 1. TEACHING ACTIVITY
- 2. SCIENTIFIC ACTIVITY
- 3. PROFESSIONAL ACTIVITY
- 4. FINANCIAL MANAGEMENT
- 5. PROFESSIONAL- ADMINISTRATIVE AND PERSONNEL OPERATIONS

The guarantee for the implementation of the planned activities in the five areas mentioned above is manifested through the activities of all units/divisions of the FVMUZ, where Heads of divisions will act as decision-makers according to the strategic guidelines within the key areas of planning. For each guideline, the divisions/departments have defined the time period for the implementation (maximum five years), method of implementation (Action plan) and the proposed control points for the continuous evaluation of the success of implementation.

Strategic planning has encompassed the analysis of the current situation, realistic assessment of the planned activities and recognition and accomplishment of FVMUZ objectives, as well as method of achieving the set objectives for the purpose of more efficient operations. All organizational units participated in the process of adopting the Strategic plan of the Faculty development, because the growth and improvement may be accomplished exclusively through the harmonized activities of all the Faculty's organizational units.

Who determines the official list of objectives of the Faculty?

The official list of objectives was prepared by the working group, responsible for the preparation of the six-year curriculum on the basis of the requirements of the EAEVE Final Report on the evaluation of the Faculty (*Report on the visit to the Veterinary Faculty of Zagreb, 4th May, 2003*) and the requirement 2005/36/ EC, as well as national legislation acts:

- *Higher Education Act* ("Official Gazette" 123/03, 105/04, 174/04, 2/07 *USRH* Decision, 46/07, 45/09, 63/11);
- *Quality Assurance Act* ("Official Gazette" 45/09 and implementing regulations arising from them);
- Animal Protection Act ("Official Gazette" 135/06);
- *The Statute of the University of Zagreb* from 2005 and the *Statute of the Faculty of Veterinary Medicine* from 2005, 2010, 2011).

The programme was adopted by the **F**aculty **C**ouncil (FC) of the FVMUZ (*Document: Class: 640-01/05-129/1*), the Senate of the UNIZG and National Accrediting Board as a part of the Agency for Higher Education of the Republic of Croatia. Based on aforementioned, in 2005 the Ministry of Science, Education and Sports of the Republic of Croatia (*Document: UP/I 602-04/05-16/223*) was issued the License to the Faculty, which proved FVMUZ rights to operate in higher education area. After receiving positive reaccreditation, the Faculty was issued the License (see Introduction and Chapter 4) by which FVMUZ continued working in 2009 (*Document Class: 602-04/09-275/1; Reg. Br. 251-61-01/139-09-1*).

During the process of electing a Dean, each candidate submits his own work programme that the FC adopts. After the election, the Dean has the duty to achieve the planned objectives with the assistance of the Dean's team, committees, working groups and staff members of all organizational units. Every year Dean has to submit an Annual report on his work to the FC for acceptance (Document Class: 602-04/09-275/1; Reg. Br. 251-61-01/139-09-1). In his work programme, the actual Dean specified the adoption of the Strategic Plan of the Faculty Development (SPFD) as one of the priorities. Since the Faculty did not have the development strategy, by the Dean's decision the Committee for the drafting of the SPFD for a five-year period (2012-2017) was established (Document: Class: 602-04/09-275/1). The Committee for the drafting of the SPFD nominated a Working Group (WG) for strategic planning, which consisted of three members from each FVMUZ division (in total: twelve members of WG plus a working group coordinator). The Working Group developed a strategic framework which was discussed at all divisions/departments and after that, together with the Committee for the drafting of the SPFD, defined principal guidelines of the FVMZ development. The FC adopted the Strategic Plan of the Faculty Development and it is available on the Faculty's website (http://www.vef.unizg.hr/en/documents/the_strategic_plan_2012_2017.pdf). Besides the implementation of the SPFD and operating in accordance with the Statute of the Faculty, the members of the FC may discuss about strategic guidelines and the revision of the official list of the most important objectives at the thematic Council sessions which are convened at the Dean's proposal, and/or at the proposal of two fifths (2/5) of the total number of the FC members.

By what procedure is this list revised?

The Committee for monitoring the implementation of the Strategic plan of the Faculty development oversees the implementation of SPFD. The Dean in his Decision (Document: Classis: 640-01/11-01/12) has specified that the abovementioned Committee shall consist of the members of the Extended Dean's team. These mean that members of the Committee for the drafting of the SPFD should become the members of the Committee for monitoring the implementation of the SPFD. The level of success of the implementation of the SPFD should be measured by continuously updating of all relevant information on activities in progress and by indicators of success (denominators) for each of the five main strategic areas. In order to improve QCS, every year in January and July, Heads of divisions should send written reports to the Committee for monitoring the implementation of the SPFD in order to inform the Committee about the level of the implementation of the SPFD in their divisions. The Committee should periodically, at least once in 6 months, inform the Faculty Council on the accomplished results of the SPFD implementation. Taking into accounts the Committee's reports and the results achieved, as well as eventual unrealized objectives, the Faculty Council should revise the list of strategic objectives in accordance with the situation in the academic community, political events (Croatia's accession to the EU in July 2013) and the EAEVE GE Final report of the visitation in the second half of 2013. In case that the FVMZ council does not adopt the medium-term development plan (SPFD 2020) in next annual period, in January 2017 the council should, at the Dean's proposal, appoint a new team for the development of the Strategy of the Faculty of Veterinary Medicine for the next five-year period.

Do you have a permanent system for assessing the achievement of the Faculty's general objectives? If so, please describe it.

In accordance with the international and national documents that emphasize the importance of quality and promote quality-based strategic and legal documents which regulate the field of FVMUZ activities, the Faculty has selected the model of QCS and developed the structure of the Quality Assurance System. The selected model is based on the University (UNIZG) document (*Standardi i smjernice za osiguravanje kvalitete u europskom prostoru visokog obrazovanja*) which is in accordance with the stated mission and vision of all Higher Education Institutions in Croatia. The University document took in consideration European document *Standards and Guidelines for Quality Assurance in the European Higher Education Area*. The basic principle on which the FVMUZ develops the structure of QCS is in compliance with the recommendations of the Agency for Science and Education of the Republic of Croatia and the recommendations of the UNIZG, respecting the specific characteristics of the Faculty. In this matter, the basic principle of the QCS is to act on all levels and in all activities of the Faculty, with active involvement of internal and external partners of FVMUZ. Even though the importance of strategic development based on QCS had been emphasized in the previously issued Faculty documents (the Statute, Regulations, the FC Decisions), the importance of strategic development based on quality assurance in this field was briefly described in the *Book of regulations on the quality assurance system at the Faculty of Veterinary Medicine*, which was adopted by the FC in May 2011.

Under these Regulations, the tasks of promoting and ensuring quality at the Faculty should be conducted at the level of the administration and decision-making authorities (responsible bodies: the Dean, Dean's team and the FC), consultancy and supervision (responsible bodies: Commissions and the Faculty's Committees), and at the executive and implementation level (responsible bodies: Heads of divisions & departments, Councils for Doctoral & Specialization Studies and Heads of administrative-professional services of the Faculty). Their cooperation on all levels and collaboration with internal and external partners is a prerequisite to ensure the quality control system of the Faculty.

1.2 COMMENTS

In your view, to extent to which objectives are achieved ?

It is our opinion that the general objectives of the Faculty are currently being achieved.

Among the main indicators are:

- In the last two years, despite the raising of the level of general education curriculum, especially in three subjects (Croatian language, mathematics and foreign language) which are compulsory at the Final State High School-Exam (FSHS-EX) and are required for admission to the Faculty, there is an increased interest of high school candidates for admission to the FVMUZ (see Chapter 9; Subchapter 9.2, The ratio of candidates / enrolled students,). In the academic year 2011/12, there was a record number of 526 applications for the 130 available places.
- The Faculty is equipped with the necessary facilities, including practical teaching sites such as farms and slaughterhouses, specialized division libraries and central library, and the Clinics division with a newly built isolation unit, which certainly ensure high educational and professional standards.
- In the surveys conducted, veterinary organizations and other institutions participating in the ongoing practical education of students gave a positive opinion, indicating a professional interest for active participation in the organization and carrying out extramural practical training outside the Faculty.
- A stimulating and friendly environment is offered to attract highly qualified and motivated students who will achieve the highest standards in the profession and ensure opportunities for continuing education and maintenance of continuous professional development.
- Obtaining outside funding to increase the professional capacity of the Faculty, which suggests that institutions (MZOS, Ministry of Agriculture, City of Zagreb, UNIZG) have confidence in the Faculty, and despite a difficult economic situation, they are ready to invest with trust in FVMUZ (see Introduction).
- By the number of realized international projects (FP7) the Faculty is the best in the Biomedical Area and is the second most successful of the 33 constituent parts of the UNIZG. In the last three years the Faculty has witnessed a steady increase in citations of papers in international databases, resulting in the best placing of our scientists on recent scientific performance charts published by the Ministry (MZOS).

What, in your view, are the main strengths and weaknesses of the Faculty?

The SWOT analysis (*Strengths, Weaknesses, Opportunities and Threats*) was conducted by working groups within the Faculty's divisions & departments during the development of research strategies of divisions and departments, and during the adoption of the SPFD for the period from 2012 to 2017. In accordance with the mentioned analysis outcomes, we will list below the most important strengths and weaknesses of the Faculty in the academic environment of the UNIZG at the present time. This analysis of the Faculty's strengths and weaknesses has been based on the discussions' conclusions reached during sessions of the FC on the different topics as follow: *Teaching at the Faculty of Veterinary Medicine, Scientific activity, International cooperation and student mobility, Professional work and training; Financial and business operations, Personnel policy and Introduction of the quality assurance system at the FVMUZ.*

STRENGTHS

- Reputation of the Faculty of Veterinary Medicine as an institution with nearly a century of tradition in higher education and scientific research.
- Competent teachers, holding a leading position in their scientific and professional fields in Croatia, who are recognized on regional and international level.
- Faculty's academic and scientific references guarantee a high quality of teaching, research and transfer of knowledge into practice.
- Successful research activity, presence of several research groups with very good results on the national level and potentially high achievements at the international encirclement.
- Excellent collaboration with scientists and teachers from related institutions in the country and abroad, achieved in certain segments of scientific and teaching activities.
- Student orientated teaching in accordance with the agreed principles and standards of international veterinary education.
- Favourable ratio between the number of teachers and students at the Faculty allows teaching in small groups of students. The number of students enrolled in each year of study is in correspondence with the number of teachers.
- Practical training oriented primarily towards the Mobile Clinic and rotations at Clinics.
- Developed models of supporting systems for the students (Mentoring system, Student Office).
- Relatively large number (41) of National Research Projects (NRP) in the relevant Ministry (MZOS) last tender, and experience in the realization of EU projects (FP7, COST, bilateral projects).
- Large number of developed postgraduate specialization programmes (PUS).
- Satisfactorily equipped laboratories and acceptably number (6) of accredited laboratories.
- Convenient position of the Faculty, with good access roads and Clinical buildings suitable for care and medical treatment of various domestic and wild animal species.
- Availability of 24-hour services on Clinics of the Faculty of Veterinary Medicine throughout whole year.
- Quality surrounding and infrastructural support for the implementation of all activities at the Faculty of Veterinary Medicine.
- Good relations and cooperation with regional Public Veterinary Services, public and legal institutions, as well as professional associations in the field of veterinary service.
- Advantageous geographical location with regard to the regional positioning.

WEAKNESSES (DISADVANTAGES)

- Inappropriate facilities for isolation of infected animals of all kinds. Current facilities do not meet the generally accepted EU norms.
- Insufficient communication between research groups, especially among basic and clinical units.
- Partially outdated IT structure.
- Non rational use of existing scientific equipment.

- Inadequate organization of administration makes many processes at the Faculty slower and less efficient.
- Uncertainty about the position of junior researchers in the unstable national conditions.
- Lack of effective financial solutions in case of introduction of the 'Lump sum' budget system.
- Lack of specific national projects for the purpose of independence and affirmation of the best young scientists.

1.3 SUGGESTIONS

If you are not satisfied with the situation, please list your suggestions for change in order of importance and describe any factors which are limiting the further develop-ment of your Faculty.

As we have repeatedly emphasized, the FVMUZ is the only Faculty in Croatia that educates veterinarians. Even though being the only one, FVMUZ is faced with many difficulties in its work. It is necessary to emphasize that the Republic of Croatia, with investments in science and research which are less than 1% of GDP (*Gross Domestic Product*) and still developing research potential, is considerably behind the EU member states in many segments. Insufficient funding of national scientific projects causes major problems in the implementation of scientific activity, and as the end of 2012, funding has been decreased until further notice. Furthermore, what also presents a major problem for the more successful professional activities and education is a significant decline of livestock in Croatia, especially in number of cattle and pigs. The main reason for reducing the number of animals is low milk price and low purchase price of livestock. The number of horses has risen, but that is associated with a higher import of sport horses in the last 10 years.

We hope that Faculty Management would, in consultation with the Government and the Unions, succeed in resolving this problem. In this way, we could retain substantial funds at the Faculty and invest them in the modernization of equipment, and further improvement of the teaching process.

Unfortunately, FVMUZ has no influence on the total number of cattle in the Republic of Croatia, because it is the jurisdiction of the Croatian Government, but FVMUZ would, by arrangement with the Ministry of Agriculture and the relevant Ministry (MZOS), try to find solutions that are going to be favourable for the Republic of Croatia and the Faculty.

CHAPTER 2. ORGANISATION





Chapter 2. ORGANISATION

2.1 FACTUAL INFORMATION

Details of the Faculty

Name of the Faculty:	University of Zagreb, Faculty of Veterinary Medicine			
Short name:	Faculty of Veterinary Medicine (acronym: FVMUZ)			
Seat of the Faculty:	Zagreb, Vjekoslava Heinzela 55, Croatia			
Telephone:	++385-1-2390-111			
Fax:	++385-1-2441-390			
URL:	<u>http://www.vef.unizg.hr</u>			
E-mail:	<u>webinfo@vef.hr</u>			
Dean:	Prof. Tomislav Dobranić, DVM, MSc, PhD			
Address of the University of Zagreb:	p.o. box 407 Trg maršala Tita 14 10002 ZAGREB, CROATIA Tel: (01) 4564 111 Fax: (01) 4830 602 URL: <u>www.unizg.hr</u> e-mail: <u>unizginfo@unizg.hr</u>			

Details of the competent authority overseeing the Faculty.

The University of Zagreb (Lat.: *Universitas Studiorum* Zagrabiensis, acronym: UNIZG) is the competent authority overseeing the Faculty. The University of Zagreb, founded in the second half of the 17th century, is the oldest continuously-operating university in Croatia and one of the older universities in Europe. It celebrated its 343rd anniversary in 2012. The Jesuit Academy, predecessor of the UNIZG was founded on September 23rd 1669, by the decree of King Leopold I, which was adopted by the Parliament of the Kingdom of Croatia and Slavonia on November 3rd 1671 (*Dies Academicus*). Since 1874, when recognised as a modern university, the UNIZG continually grows and develops. From 1919 to 1980, a larger number of previously independent schools of higher education and academies were incorporated into the UNIZG, becoming its new constituents. This restructuring resulted in Faculties and Academies becoming legally independent institutions. After the declaration of Independence of the Republic of Croatia (RH) in 1991, the UNIZG had made first steps towards the European Higher Education and research standards, even before RH joined the Bologna Process in 2001. Since 2001, the UNIZG adopted the *Statute of the University of Zagreb* as well as strategic documents for numerous issues.The founder and holder of the founder's rights of the University of Zagreb is the Republic of Croatia.

Although the majority of UNIZG constituents' facilities are situated in the City of Zagreb some of UNIZG facilities are located in four other towns (Varaždin, Sisak, Čakovec and Petrinja). Thirty UNIZG constituents are located in Zagreb, two in Varaždin, one in Sisak, and though the main UF building is situated

in Zagreb, while other two subunits are situated in Čakovec and Petrinja. All above-mentioned facilities lie within a 70 km radius. Apart from these, the UNIZG has many other units and facilities (i.e. centres, fields, forests, hunting grounds, a planetarium), or facilities given for use (i.e. airport for FPZ pilots education), in Zagreb and across Croatia mainly used for education, field training or research. One of the most relevant real estate of the UNIZG is the CAAS in Dubrovnik. This facility (comprising lecturing rooms, offices, dormitory) hosts and organises different international scientific and educational events. The UNIZG facilities, spread out across the City, may be grouped in three main campuses – Central campus, Northern campus, and Eastern campus.

The UNIZG, as the biggest Croatian public university, is a leading higher education institution in Croatia. The core of the UNIZG consists of 29 Faculties, three Academies and one Centre for Croatian Studies. The UNIZG is involved in functioning and operation of public institutions and organisations (i.e. University Computing Centre - SRCE); National and University Library (NSK); three Students Centres (SCs); University Printing-House (ST); University Publishing Company (SN); University Hospital; Regional Centres, etc.). The UNIZG coordinates student cultural and sport organisations and activities (i.e. Student Cultural and Artistic Association "Ivan Goran Kovačić", HAŠK "Mladost", AMAC (*Almae Matris Alumni Croaticae*) and supporting academic and research networks and HEI Information Systems (CARNet, ISVU, SAP).

UNIZG's constituents, staff, and students are dedicated to the pursuit of the university's mission: teaching, research, and service to society. One of the important elements of the UNIZG mission is high quality of teaching at all levels: undergraduate, graduate, and postgraduate. Research serves both the expansion of knowledge and the improvement of education. UNIZG is a major, public, comprehensive university offering a variety of study programmes at all levels established in line with Bologna requirements. The number of undergraduate, graduate, integrated, specialist and doctoral study programmes is nearly six hundred, and there is almost five thousand teaching staff (including assistants) employed at the UNIZG.

In the academic year 2008/2009, the UNIZG employed in total 5166 academic staff: 1039 full professors; 710 associate professors; 900 assistant professors (*docent*); 85 researchers; 301 lecturers; 2131 research assistants-junior researchers. In the academic year 2008/2009, the UNIZG employed in total 2756 non-academic staff: 156 professional associates, 145 library staff, 2455 administrative, professional and other auxiliary staff. In the academic year 2008/2009, the UNIZG had around 64 000 students (including doctoral students).



Diagram 2: Employees of the UNIZG presented by titles in academic year 2010/11 according to the official list of the Ministry (MZOS) on 30/3/2011

Complete data are available on the website of the University of Zagreb: <u>http://www.unizg.hr</u>. The autonomy of the UNIZG in the field of teaching is large. Faculties/Departments/UNIZG propose study programmes according to their interests and capacities. These study programmes are approved by the Senate of the UNIZG, while the (State) Agency for Science and Higher Education (hereafter: ASHE) registers them and approves their financing from state budget funds. Presently there are no restrictions regarding enrolment numbers other than those set by the UNIZG. Nevertheless, actual limitations are defined by available financing and human resources.

The University (UNIZG) is headed by: the Rector, Senate, University Council (hereinafter: the Council) and the Rector's Board (see Scheme 1).

The main authority and administrative bodies within UNIZG are:

The **Rector**, as the head of the UNIZG, is chosen for a term of four years that can be repeated once. Only a full professor from the UNIZG can be candidate for the Rector. The Rector proposes the positions of Vice-Rectors to the Senate for adoption. At the present there are five Vice-Rectors (for study programmes and students, for research and technology, for financing, for international and legal affairs, and for spatial planning and inter-institutional cooperation). The Rector and the Vice-Rectors form Rector's Collegium that is extended to the enlarged **Rector's Collegium** by seven representatives from the Field councils and one student representative. The enlarged Rector's Collegium discusses the issues and assists the Rector in decision making. It meets once a week and discusses UNIZG policies; and it presents proposals on the UNIZG Budget, developmental and research programmes, and investments to the Senate. It advises the Senate on rules and regulations proposals, improvement of administrative and legal services, etc.

The **Senate** is the main governing body of the UNIZG. The Senate has 70 members and is comprised of the Rector, academic staff, and student representatives. Although according to the Statute, Deans do not have to be the Senate members, in practice they all are. The rest of seats for academic staff is then taken by other academic representatives from the constituents. The Rector presides over the Senate. It meets once a month and adopts new university legislature, study programmes, academic promotions (full professors), university textbooks, financial plans, investment plans, etc. The agenda for the Senate is often extensive so the meeting can last for three to four hours. Every four years the Senate elects the new Rector among the candidates proposed by Field Councils and groups of constituent units. It also appoints representatives of the UNIZG to the University council.

The **University Council** is an oversight and counselling body that has twelve members: six appointed from the UNIZG and six by public institutions (Croatian Parliament, Chamber of Commerce, City of Zagreb and City of Varaždin). The Council meets regularly every three months to oversee and discuss the activities of the UNIZG. Once a year it adopts the Rector's report on the state of the UNIZG. If the need arises the Rector can ask the president of the University council to convene a meeting so as to consult on the situation. The University council has no role either in the process of electing the new Rector or in any concrete decision-making process.

The six **Councils** (see Scheme 1) have a limited decision making role; however they serve as discussion bodies in preparation for the Senate sessions. The number of members they have depends on the size of the academic institutions in the fields they represent. Altogether they comprise some 200 members of the academic staff. Since they have monthly meetings they sometimes stretch the capacity of the administrative staff of the Rector's Office. In the process of electing the new Rector, the Councils can nominate and give their support to a candidate. The Rector has periodical **thematic meetings with Deans** of UNIZG constituents.

Along with the mentioned bodies there is **a number of working committees** of different importance depending whether they are defined in the Statute (i.e. Statutory Committee, QA Committee, and Budget Committee) or appointed by the Senate, the Rector or some other body or executive.

Scheme 1: Organization of the Rectorate of the UNIZG and the FVMUZ in relation to the University



Types of study programmes in the Republic of Croatia

Higher education in Croatia is carried out within Polytechnic and University studies which are organized into two so-called verticals - professional and academic, each of which has several levels of study programmes.

Professional study programmes provide students with an appropriate level of knowledge and skills which enable graduates to work in applied professions and qualify them for immediate integration into the working process. Professional study programme is organized on two levels, undergraduate and specialist graduate level. Undergraduate professional programme lasts three (exceptionally four) academic years and upon its completion 180 ECTS are acquired. Having completed undergraduate professional programme is a special study programme is a special study four) academic years and upon its completion 180 ECTS are acquired.

sional study programme with 180 ECTS, the professional title of the Bachelor of a specific profession is acquired. Specialist graduate professional study programme lasts one to two academic years and upon completion, 60 to 120 ECTS credits are gained. Having completed this programme, the professional title of the Specialist of a specific profession is acquired.

University study programmes comprise three levels - undergraduate, graduate and postgraduate level (see Scheme 2).

- **Undergraduate university programmes** regularly last three or four academic years, and upon their completion provide graduates with 180 to 240 ECTS and the academic title of the University Bachelor of a specific profession is acquired.
- **Graduate university programmes** regularly last one to two academic years and, upon completion, provide graduates with 60 to 120 ECTS credits.
- Having completed undergraduate and graduate university programmes, at least 300 ECTS are gained and the academic title of the Master of profession is acquired.
- **Postgraduate specialist programmes** regularly last one to two academic years and, upon completion, award the academic title of the University Specialist with the specification of a profession.
- **Postgraduate university (doctoral) programmes** regularly last three academic years and, upon completion, usually award 180 ECTS credits and the academic title of a Doctor of science.

There are currently about 1272 accredited study programmes in the Republic of Croatia.



Scheme 2: Types of study programmes in the Republic of Croatia

Source: Agency for Science and Higher Education

Indicate the rules concerning the appointment of the elected officials of the Faculty (Dean, Vice-Deans, Head of Department, etc.).

According to the Statute of the Faculty (from 2011), the elected officials are the Dean, Vice-Deans and Head of Divisions.

The **Dean** may be elected among the Faculty teachers who hold scientific-educational title of associate or full professor. The Dean is elected for a three-year term. The same person may be elected for two consecutive Dean's terms. The Dean manages the Faculty, represents the Faculty, is its head and manager, and performs tasks specified by the Act, the Statute of the University of Zagreb and the *Statute of the Faculty of Veterinary Medicine*. The Dean is the member of the Senate and the Field Council of the University. At least once a year, the Dean submits the report on his/her work to the FC and the Rector, including a report on the Faculty budget plan and its execution.

Vice-Deans directly assist the Dean (right now we have four Vice-Deans in accordance with the Statute). Vice-Deans may be elected among teachers who hold scientific-educational title. The Faculty Council, on the proposal from the Dean, elects Vice-Deans by a majority vote of the FC members. Vice-Dean's mandate lasts as long as the mandate of the Dean.

The Faculty Council is the main governing body of the FVMUZ composed of staff member elected to scientific-educational, educational and scientific titles, twenty representatives of employees elected to associate or professional titles, five from each department and student representatives. The number of student representatives to the FC has to be 15% of the total number of members of the FC.

The Head of Division (hereinafter: the Head), on the proposal of a majority of the Division Council members is approved by the Faculty FC and confirmed by the Dean. If the Dean does not confirm the elected Head, the election procedure may be repeated up to two times. If the Head has not been chosen in the repeated election process, the FC, on the proposal of the Dean, shall decide on the election of the Head from among all Division members elected to scientific-educational titles. The Head's mandate lasts for three years. The same person may be elected to two consecutive terms. Heads play an important role in the organization and management of the Faculty.

Election of Head of Department/Clinic. The Head is elected by all employees of the Department/Clinic by a majority vote of all the staff members of the Department/Clinic. The mandate of the Head lasts three years. The same person may be elected to the same position twice in a row. The Head manages the activities of the Department/Clinic, implements development, personnel and financial policy and takes care of educational, scientific and professional work of the Department/Clinic. The Head D/C is responsible for his/her work to the Head of the Division, the Dean and the FC.

Head of Department/Clinic laboratory is appointed by the Head of the Department/Clinic. A person who has appropriate qualifications depending on the laboratory activities may be appointed the Head of the Department/Clinic laboratory. The Head shall be appointed for a three-year term. The same person may be reappointed as the Head. The Head of the laboratory is responsible to the Head of the department.

The Faculty secretary is the Dean's executive and assists the Dean in performing activities in the organizational unit of the Faculty administration. The secretary is the manager of the Secretariat. The secretary shall be appointed by the Dean on the basis of the public job announcement.

Each **Postgraduate Specialization Study has a** *Head* whose duties are specified in the Statute of the Faculty.

Provide a diagram of the administrative structures showing the Faculty in relation to the university and ministerial structure of which it is part.

The Faculty is a legal entity with the status of a public institution which is registered in the Register of Establishments in the Commercial Court in Zagreb and in the Register of Higher Education Institutions kept by the Ministry (MZOS).

Please see Figures 1 and 2.

Provide a diagram of the internal administrative structure of the Faculty itself (Councils, committees, departments, etc.)

Please see Figure 3.

Figure 1: Diagram of the Administrative Structure of the FVMUZ, in Relation to the University



Figure 2: Diagram of the Administrative Structure of the Croatian Higher Education, in relation to the Ministerial structure





Figure 3: Internal Organizational Structure of the FVMUZ

Describe, briefly, the responsibilities, constitution and function of the main administrative bodies (councils, committees, etc.)

The Dean runs the Faculty, represents it and acts on behalf of the Faculty. The Dean has all powers prescribed by Acts, the University Statute and the Faculty Statute. The Faculty may be represented by Vice-Deans and the Secretary authorized by the Dean issuing a special power of attorney. The contents and nature of the power of attorney shall be determined by the Dean. The Dean chairs the FC and ensures implementation of the FC decisions and conclusions. The Dean shall be responsible for the implementation of the university bodies' decisions at the Faculty. The Dean is independent in performing activities within the scope of his/her work and is responsible for his/her work to the FC and the Rector.

The Dean's board is the Faculty's execution body including the Dean and Vice-Deans. In academic year 2010/2011, the members of the Dean's board were: Prof. Tomislav Dobranić, DVM, MSc, PhD, Dean Prof. Ksenija Vlahović, DVM, MSc, PhD, Vice-Dean for Education Prof. Nenad Turk, DVM, MSc, PhD, Vice-Dean for Finances Prof. Josip Kos, DVM, MSc, PhD, Vice-Dean for Quality Control and Continuing Education Prof. Alen Slavica, DVM, MSc, PhD, Vice-Dean for Science and International Cooperation

The members of the Dean's board were elected at the FC session of 18th May, 2010 and their mandate ends on 30th September, 2013.

The FC working bodies are committees. Committees work in sessions. The working groups discuss proposals for making decisions on the FC. The Dean recommends committee members to the Council, and members of the FC may supplement the list. The Council votes on the final proposal. The Faculty Statute and accompanying normative acts determine the composition and number of members and the scope of work of committees. The Faculty committees play an important role in the quality assurance of educational, scientific and professional work of the Faculty at the level of consultation and performance. In academic year 2010/11, there were following standing committees at the Faculty:

- 1. The Committee for the Statute
- 2. The Committee for Integrated Undergraduate and Graduate Study Program
- 3. The Committee for Projects
- 4. The Committee for Awards
- 5. The Committee for the International Cooperation
- 6. The Student Disciplinary Committee
- 7. The Staff Disciplinary Committee
- 8. The Committee for Ethics in Veterinary Medicine
- 9. The Committee for Library and Publishing
- 10. The Committee for the Election to Scientific, Scientific-educational, Educational and Associate titles 11. The Quality Management Committee.

Councils are:

- 1. Council for Doctoral Study
- 2. Council for Specialization Studies

The Faculty Council may appoint temporary committees for specific activities within its jurisdiction.

Jurisdiction of standing committees includes:

• The Committee for the Statute: drafts general acts of the Faculty, proposes adoption and amendments to the general acts of the Faculty, gives authoritative interpretations of the Statute and other general acts of the Faculty, determines irregularities in the application of acts, resolves conflicts relating to jurisdiction of working bodies, adopts consolidated texts of the Faculty general acts when these acts have been amended at least three times, considers complaints relating to the violation of a Faculty act, notifies the Council and the Dean of the violation of the Faculty acts, laws and other regulations and proposes measures to prevent further violation.

 The Committee for Integrated Undergraduate and Graduate Study Program: organizes and aligns teaching processes in integrated undergraduate and graduate study programs, considers and prepares proposals relating to monitoring teaching processes in terms of developing curricula and proposes to the Council acts and measures for a successful implementation of teaching processes.

The Committee chairperson is the Vice-Dean for Education.

- The Committee for Projects: considers and prepares applications to registration for public competitions for research projects and tasks, supervises the introduction of the junior researchers and their inclusion into certain projects, monitors the preparation of proposals for the acquisition of research and scientific equipment, prepare proposals for national and international scientific projects/funds.
- **The Committee for Awards:** proposes candidates for awards and acknowledgements to be given to deserving teachers, scientists and other Faculty employees, individuals and institutions outside the Faculty, implements the award-giving process, monitors public awards competitions published by state authorities, institutions and other legal entities, especially in the fields of natural sciences, biomedical sciences and biotechnology, and promptly informs the Council about the abovementioned activities.
- The Committee for International Cooperation: proposes programs for the development of international cooperation, monitors opportunities for the teacher and student exchange programs, assists in carrying out study visits abroad and helping foreign teachers, scientists and students to stay at the Faculty, assists with accomplishing international projects and organizing international conferences. The Committee chairperson is the Vice-Dean for international cooperation.
- **The Student Disciplinary Committee:** implements disciplinary actions on the students in accordance with separate Regulations.
- **The Staff Disciplinary Committee:** implements disciplinary actions on the employees in accordance with separate Regulations
- **The Committee for Ethics in Veterinary Medicine:** makes decisions on ethical acceptability of a research and its scientific justification in accordance with the Animal Protection Act. It also carries out other activities related to ethics in veterinary medicine.
- The Committee for Library and Publishing: decides on proposers' requests for the approval of manuscripts, classifies manuscripts by type, proposes a reviewer, proposes the method of the renovation and additions to library holdings, discusses and proposes measures in the field of publishing and IT activities.
- The Committee for the Election to Scientific, Scientific-educational, Educational and Associate titles: proposes the appointment of expert committees during the procedure for the election to scientific, scientific-educational and educational titles, proposes the adoption of expert committees' reports during the procedure for the election into titles, proposes general acts and measures in the field of organization and job systematization at the Faculty.
- The Quality Management Committee: encourages development programs in order to promote quality control in accordance with international and national standards, criteria and processes, provides counselling and guidance and supervision of all bodies at the levels of the implementation of measures for the establishment and assurance of the control system, plans processes of an internal audit of the quality system at the Faculty, presents the Faculty in the national and international network for promoting quality culture and the quality assurance system, develops quality indicators, provides support in meeting quality standards, encourages self-analysis and implementation of measures to improve quality.

The Committee chairperson is the Vice-Dean for quality control.

Temporary dean's committee:

The committee for the implementation of compulsory extramural practical training: Composition: Vice-Dean for Education acting as the chairperson, 3 representatives of teaching staff – Heads of clinics, each responsible for different areas of training activities. The committee resolves teaching issues, deals with the organization, implementation and monitoring of compulsory extramural practical student training.

Overview of the organizational structure of the FVMUZ

Divisions are the basic organizational units of the Faculty. Departments and Clinics are lower organizational units of the Faculty, established on the basis of correlation in academic, scientific and professional work.

The Faculty has:

- 1. Basic and Pre-clinical Sciences Division:
 - 1) Department of anatomy, histology and embryology
 - 2) Department of biology
 - 3) Department of physics
 - 4) Department of physiology and radiobiology
 - 5) Department of chemistry and biochemistry
 - 6) Department of pathological physiology
 - 7) Department of history and ethics of veterinary medicine
- 2. FVMUZ Clinics Division:
 - 1) Mobile (Ambulatory) clinic
 - 2) Surgery, orthopaedics and ophthalmology clinic
 - 3) Reproduction and obstetrics clinic
 - 4) Internal diseases clinic
 - 5) Department of veterinary pathology
 - 6) Department of radiology, ultrasound diagnostics and physical therapy
 - 7) Department of forensic and judicial veterinary medicine
- 3. Animal Production and Biotechnology Division:
 - 1) Department of hygiene, ethology and animal welfare
 - 2) Department of game biology, pathology and breeding
 - 3) Department of biology and pathology of fish and bees
 - 4) Department of nutrition and dietetics of animals
 - 5) Department of animal husbandry
- 4. Veterinary Public Health and Food Safety Division:
 - 1) Department of pharmacology and toxicology
 - 2) Department of hygiene, technology and food safety
 - 3) Department of microbiology and infectious diseases with clinic
 - 4) Department of parasitology and parasitic diseases with clinic
 - 5) Department of poultry diseases with clinic
 - 6) Department of veterinary economics and epidemiology
- 5. Chairs:
 - 1) Chair of physical and health education
 - 2) Chair of foreign languages

- 6. Scientific-educational grounds:
 - 1) Hunting-educational ground "Črnovšćak"
 - 2) Faculty land for Farm & Educational Centre

7. Faculty administration:

1) Deanery:

- a. Dean's office
- b. Office for international cooperation, science and technology
- c. Office for integrated and postgraduate studies
- d. Office for associate and professional titles
- e. Office for students

2) Secretariat:

- a. Secretary's office
- b. Legal affairs and human resources division
- c. Information technology division
- d. Maintenance division
- e. Department of health and safety at work
- f. Central Faculty archives

<u>3) Accounting</u>:

- a. Bookkeeping department
- b. Accounting and finance department
- <u>4) Library</u>

For details on the functions of all councils, committees and other bodies referred to in this section, please go to the following pages: <u>http://www.vef.unizg.hr/en/legislation.php?a=j&m=ffff0</u>

Indicate the involvement of the veterinary profession and general public in the running of the Faculty.

Although the veterinary professionals and the public are not officially involved in the work of the Faculty governing bodies (this is not possible, based on UNIZG guidelines), in the last decade the veterinary profession has regularly participated in the important aspects of Faculty life.

Recently, on the basis of their engagement in the compulsory extramural practical training, veterinary professionals have monitored and participated in the Faculty activities, which is worth mentioning due to their influence on the quality of teaching. So far, they have been engaged in:

- The preparation of the executive plan for compulsory extramural practical training which was developed in the last, sixth year of study. Specifically, the members of the Croatian Veterinary Board (CVB), Croatian Veterinary Institute (CVI) and the Veterinary Directorate (VD) of the relevant Ministry (MA), participated in the abovementioned process.
- Involvement of practitioners and public veterinarians in the joint "roundtables" with members of the teaching staff with the aim of writing a comprehensive list ("Day-One skills") which the Faculty has to fulfil as practical training outcomes for veterinary graduates who enrolled new (IUGUSVM) programme.
- Drafting the document about student's obligations during the compulsory extramural practical training. The resulting document is now available on the Faculty website* (replaces the old "State Exam Manual") and it is also published in the form of Manual for compulsory extramural practical training. *See: <u>http://www.vef.unizg.hr/nastava/izvanfakultetska/</u>
- Veterinary practitioners as veterinary experts in particular fields participate in a series of teaching activities such as lectures, seminars, extramural classes, practical work on outside patients, etc.

• Additional inputs from the veterinary professionals are transferred to the Faculty through cooperation of the academic staff with representatives of professional associations during their frequent meetings organized on the national level by CVB, CVI & VD(MA).

2.2 COMMENTS

Add any comments on the organization and functioning of the Faculty that you feel useful for completing the description.

Alignment of the curriculum to the needs of the veterinary practice is provided within extensive preparations, required for implementing the compulsory extramural practical training. Therefore, in the year 2010, a working group was established within the Faculty, representing the link between leading experts from veterinary profession towards FVMUZ teachers and scientists. The working group is composed of members of the Dean's Board, representatives of the MA, representatives of the CVI, private veterinary clinics and the **C**roatian **V**eterinary **C**hamber (CVC). In academic year 2010/11, all practical teaching outside the Faculty was for the first time organized according to the new curriculum, with the mutual satisfaction of all participants engaged in the teaching process. The colleagues from a numerous collaborating institutions were allowed to participate in the creation of the practical part of veterinary education. In the formal sense, the FVMUZ has contracted and realized cooperation on the students' practical training with over 60 major employers in the field of veterinary medicine in Croatia.

2.3 SUGGESTIONS

If you are not satisfied with the situation, please list your suggestions for change in order of importance and describe any factors which are limiting the further develop-ment of your Faculty.

Please see Chapter 1, 1.3 Suggestions.

CHAPTER 3. FINANCES















Chapter 3. FINANCES

3.1 FACTUAL INFORMATION

As a constituent part of the University of Zagreb, the Faculty of Veterinary Medicine is financed by the Government according to the guidelines of the Republic of Croatia drafted in the Proposal of the financial plan for the three-year period.

The Proposal of the financial plan of the Faculty is a part of the Consolidated Financial Plan of the University which insures annual funds from the state budget by the Ministry of Science, Education and Sports.

The needs of the Faculty for covering operational costs, costs of investment maintenance of facilities and equipment as well as salaries of the teaching staff are higher than the funds allocated from the Budget which amount to 75% of the total income of the Faculty. This is included in the Faculty's fiscal plan drafted according to prescribed guidelines (limits). However, the Faculty has not been able to influence the amount of the approved funds for this, as well as for previous years, therefore a part of operational costs, costs of investment maintenance of facilities and equipment is covered by Faculty's own income which amounts to 20% of the total income.

This chapter shows data on total financial operations concerning revenue and expenditure of the Faculty for the last three years.

3.1.1 GENERAL INFORMATION

Indicate whether the Faculty's current financial model (system) meets the Faculty's mission.

Financial operations of the Faculty are shown in the balance sheet at the end of each fiscal year pursuant to the Law on Budget. The largest income category of more than 75% comes from the Budget. According to the proposals from the legislator, the introduction of lump sum funding system is expected in the near future, which means the funds should be allocated in one lump sum. With this system of financing, revenue generated on the market shall become a very important item, particularly in the area of providing the intellectual and professional services, clinical work and the organization of specialized courses and workshops.

Consequently, the Faculty's strategy for the period 2012-2017 anticipates the increase in its revenue on the market to over 25% of the total revenue.

The revenue increase would allow the co-financing of developmental projects and capital equipment as well as investments in renovation of the facilities.

Activities:

- a. Defining a model of creating funds on the market for each department for the next five years. Project leaders are the extended Dean's Council, and its coordinators are the Dean himself and Vice-Dean for finances.
- b. Action plan for creating a priority list for investments of the funds of the Faculty of Veterinary medicine priorities according to departments and clinics. Project leaders are the extended Dean's Council, and its coordinators are the Dean himself and Vice-Dean for finances.

c. Establishing the co-financing model of developmental projects and capital equipment for each department/clinic. Project leaders are the extended Dean's Council, and its coordinators are the Dean himself and Vice-Dean for finances.

The plan is to be realized in three to five years.

How the allocation of funding (including public funding) to the Faculty is determined, and by what body.

The FVMUZ is a state budget beneficiary financed from the State Budget as a part of the University of Zagreb on the basis of the plan submitted by the Faculty for each subsequent year during the current year. The budget plan includes the Faculty's own revenue, thus planning 75% of the funds from the state budget, 20% from own revenue and 5% from other revenues.

Budgetary funds are allocated for employee's salaries, covering of material costs (electricity, water, heating, utilities, and maintenance) as well as realization of scientific and research projects, and Faculty's own revenues are allocated according to the Regulations on standards and usage of income earned on the market.

How the basis for funding the Faculty compares with those teaching other courses (e.g. whether veterinary training receives a higher budget weighting compared to other disciplines).

Although the FVMUZ has clinics with animals for teaching purposes, thus financing utility costs and maintenance of large area of facilities, as well as organizing fieldwork for students in veterinary clinics and ambulatory clinics throughout Croatia, the programme does not get significantly larger budget than other biomedical disciplines. So far, the budget provides funds for payment of duty services at clinics for teaching and support staff, while the Faculty mostly covers the costs of investment maintenance of facilities and equipment from its own revenue.

How the allocation of funds within the Faculty is decided.

The funds from the Budget are allocated by the Faculty according to the type or purpose of allocated funds, funds for scientific research projects on the basis of contractual obligations and salaries for research fellows, and Faculty's own income is allocated pursuant to the Regulations on standards and usage of income earned on the market. The Law on Execution of the State Budget proscribes that the Faculty's own income is considered an income of the State, meaning the Faculty has the obligation to cover all the expenses from its own income and cannot borrow more than earned income. The Decision on allocation of Faculty's own income is brought by the responsible person, i.e. the Dean himself, proposed by the heads of Departments/Clinics that is the heads of postgraduate and doctoral studies.

What are the mechanisms for funding major equipment and its replacement?

The largest part of equipment procurement and replacements is funded from the income earned by Departments and Clinics in the market, and for Departments that have no income, from other income of the Faculty.

The mechanism(s) for funding capital expenditure (e.g. building work, major items of equipment) and how decisions are taken in this matter.

The FVMUZ plans necessary funds for construction and basic equipment each year. These funds come from the budget, special purpose funds and partly from Faculty's own income. Unfortunately, due to

the lack of total funds of the Republic of Croatia, the planned funds were partially granted for necessary adaptations and repairs, and sometimes were not granted in the required amount at all.

For the financing of major investments in facilities and equipment, the Faculty provides other sources, the budget of the City of Zagreb, grants, other ministries and its own revenue.

In the last decade, the Faculty invested a total of 6,456,895.61 EUR for reconstruction and repayments of the facilities and building environment. 73% of the funds came from loan grants and the budget of the City of Zagreb, and 27% from Faculty's own income. The total amount of 3,654,618.90 EUR was invested in medical, laboratory, optical and other equipment. 70% of the funds came from loan grants and the budget of the City of Zagreb, and 30% from Faculty's own income. The newly acquired equipment modernized the clinic's facilities, classrooms and exercise rooms for students, as well as diagnostic and research laboratories.

The mechanism(s) to provide the necessary support for building maintenance and how decisions are taken in this matter.

Ensuring the maintenance of facilities and buildings, due to insufficient funds from the Budget of the Republic of Croatia, are largely provided from its own income and based on the proposed annual plan.

3.1.2 INFORMATION ON EXTRA INCOME

What percentage of income from the following sources does the veterinary teaching
Faculty have to give to other bodies (university, etc.)?

clinical or diagnostic work:
research grants:
other (please explain):

On the basis of legal regulations, the Faculty has the obligation to allocate specific funds for capital maintenance and equipment from its own income to the University of Zagreb pursuant to the Regulations on financing of the fund for development of the University of Zagreb and its parts as follows:

- from undergraduate and graduate studies 3%
- from postgraduate studies 2%
- from scientific and professional activities
 1%
- from rentals of facilities 6%
- from other revenue 3%

The Faculty's regulations proscribe standards on allocation of part of the Faculty's own income for improvement of the activities of the Faculty.

Please indicate whether students:				
 pay tuition/registration fees, 				
 How much these are, 				
 How they are decided, 				
 How the funds are distributed. 				

• Pay tuition/registration fees: In 2012, the Government of the Republic of Croatia adopted the Decision on full participation in the costs of study for full-time students studying at public universities enrolled in the first year of study for the first time, and for senior students who earned 55 or more ECTS. The grant amounts to 486.67 EUR. On the basis of the Decision, the University of Zagreb

adopted a new Decision on unification of participation in study costs for full-time senior students of the University of Zagreb. The grant per student amounts to 487 EUR for each study year.

- How much these are: Senior students with up to 35 ECTS earned pay the sum of 1.280 EUR per study year and students with 35-54 credits earned pay 21.33 EUR per credit.
- How they are decided: The decision on value of an ECTS is adopted by the University of Zagreb yearly, according to study groups.
- How the funds are distributed: Pursuant to the regulations of the Faculty, 40% of the funds are invested in investments and equipment, and the rest is allocated for covering other costs (regular maintenance of facilities and equipment, covering the overhead costs).

Table 3.1: Income/Revenue

State (government)		Income generated by the Faculty		Total EUR	
Year	To University admi- nistered outside the Faculty	Direct to Faculty	Income from services provided	Research	
	1	2	3	4	
N*	7,104,655	1,967,363	2,617,378	231,899	11,921,295
N-1	6,970,602	2,410,739	2,509,257	164,706	12,055,304
N-2	6,807,561	2,419,791	2,403,353	93,669	11,724,374

*year (2012) prior to visitation

Table 3.2: Expenditure

	Рау			Non Pay		
Year	Salaries	Teaching support	Research support	Clinical support	Other*	Total EUR
	1	2	3	4	5	
2012	7,104,655	1,052,564	399,709	1,061,374	2,615,000	12,233,372
2011	6,970,602	1,180,534	486,643	864,846	2,183,694	11,686,319
2010	6,807,561	1,242,903	315,793	452,666	2,660,571	11,479,494

* Other: equipment costs, investments (loans, City of Zagreb, other ministries) and other costs of the Faculty.

Please note that some of the information requested might not be available to all Faculties; in these cases indicate "not applicable" with some explanatory remarks.

3.2 COMMENTS

Teaching establishments never have enough finance. Please comment on any of the "Guidelines and Requirements" that are particularly difficult to fulfil in the present financial situation. Please make any comments that you feel would help the experts concerning the Faculty´s finances.

Since the financial resources of the Faculty are limited by the State Budget passed at the end of each year for the following year, it is difficult for the Faculty to cover the overheads (electricity, water, cleaning services, utility charges) because it is not possible to reduce these prices since the prices are created by public companies which have monopoly, and the funds allocated by the budget have never been sufficient to cover all these costs. Also, the Faculty has no saying in the level of salaries, because the salaries are proscribed by the Law on salaries in public services passed by the Government of the Republic of Croatia and the Regulation on job titles and complexity coefficients in public services. Of the total higher education funds transferred, funding of salaries amounted to 77% and covering of material costs as little

as 8%. As for scientific research work financed by the Ministry of Science, the funds for certain projects are not sufficient for covering the expenses of basic research material, since the annual value of specific projects amounts from 3,287.67 EUR (the lowest), up to 20,000.00 EUR.

What is your number one priority for the use of any increased funding?

Our main priority in case of increased funding is providing the funds for teaching material and equipment and maintenance of teaching facilities.

Comment on the degree of autonomy and flexibility available to the Faculty in financial matters.

The Faculty of Veterinary Medicine has the autonomy and flexibility in funding only in the realized own revenue part of income. However, there is a condition obliging the Faculty to invest a certain percentage of revenue in equipment and investment maintenance according to the Faculty's budget plan.

Comment on the percentage of income from services that the Faculty is allowed to retain for its own use, and in particular on the extent to which loss of this income acts as a disincentive for the services concerned.

The Faculty's own needs regarding cooperation with individuals and the economy are realized without the influence of external factors. Part of the revenue used for its own needs is limited by the approved quota of students enrolled, and for postgraduate students, it is based on the number of student's applications for each postgraduate study. Since the Faculty's Regulation on own income proscribes the distribution of income realized from its own activities insuring that the part of revenue may be distributed for non-standard activities, the fact that there is a small number of postgraduate students and also a small number of patients at clinics is definitely discouraging.

Please make any other general comments that you feel would help the experts concerning the Faculty's finances.

It is essential for the University to reconsider the system of distribution of funds allocated for the faculties within the group of biomedicine science, a part of which is the FVMUZ. Specifically, the costs of education for doctors of veterinary medicine are among the highest at the University, therefore this should be taken into account when allocating funds.

lf you are not satisfied with the situation, please list any short comings and provide suggestions –in order of importance and describe any factors which are limiting the further development of your Faculty.

With the current ways of financing scientific research activities from the budget, it is not possible to achieve satisfactory results in education and scientific progress. The Government should change its policy regarding financing education and science at all.

3.3 SUGGESTIONS

It is necessary to increase the funds for the employees at Faculty's clinics since, because of the curriculum, practical training of students demands lots of overtime work during weekdays as well as on weekends. The Government should increase the funds for maintenance of the complex system of teaching buildings and facilities within the clinics in order to prevent devastation of existing facilities as well as newly refurbished premises of the campus.

Since with the current ways of financing scientific research activities from the budget it is not possible to achieve satisfactory results in scientific progress, it is necessary to turn to European sources of founding in greater extent in order to raise the level of scientific productivity to the European average.

CHAPTER 4. CURRICULUM















Chapter 4. CURRICULUM

4.1 FACTUAL INFORMATION

Indicate whether there is a defined national curriculum and (if applicable) how and by what body decisions are taken on this.

The curriculum at the FVMUZ is structurally and conceptually consistent with the statutory provisions, which also stipulate the adaptation of the studies to the "Bologna Declaration" and evaluation of the students' work through ECTS regime (*European Credit Transfer and Accumulation System*). Croatia acceded to the Bologna process in 2001 and has been its active participant ever since. At the Faculty Council (FC) session of 17th March 2005, the FVMUZ adopted the decision on the application of ECTS regime (*Document: class: 640-01/05-103/1, Reg. no.:61-01/139-05-5*). The veterinary profession belongs to the group of regulated professions, so the curriculum has been largely harmonized with the provisions of *Directive 2005/36/EC*, as wells as with the *Law on Regulated Professions and Recognition of Foreign Professional Qualifications* ("Official Gazette" 124/09). Based on the abovementioned, the Faculty decided that the study would be carried out as integrated programme (IUGUSVM), in one educational cycle of six years.

The six-year curriculum of the FVMUZ is carried out as "new" curriculum (IUGUSVM programme) and it is the direct successor of the five-year "old" curriculum which the Faculty conducted between 1995 and 2005. The "old" curriculum was carried out under the name "*Curriculum of the study of veterinary medicine at the* FVMUZ" and as such was the only program in that field in Croatia.

The "new" - current curriculum was adopted at the FC session on 11th March 2005. Pursuant to Article 7 of the *Law on Academic and Professional Titles and Academic Degree* ("Official Gazette" 107/07) the Rector's Conference has brought a list of academic titles and academic degrees and their abbreviations, according to which the name of the study program run by the FVMUZ is *Veterinary Medicine* and the level of the study is *Integrated undergraduate and graduate study*. All students completing the abovementioned university study are entitled to *Diploma Supplement* (DS), in accordance with *Regulations on the content of accreditation and conditions for issuing accreditation for the performance of higher education, conduct of study programs and re-accreditation of higher education institutions* ("Official Gazette" 24/10). Content of the DS was defined on the proposal of the Committee for education and confirmed by the Decision of the FC session of 16th June 2010.

Procedures by which the FVMUZ gained approval for the conduct of the curriculum

The process of accepting the new curriculum meant obtaining Accreditation from the Ministry (MZOS), as well as UNIZG. UNIZG set the rules which specify the basic criteria which the constituent units of the University must adhere to when registering new study programs.

The Faculty council proposed the new study program to the Senate of UNIZG through the University body, Council for biomedicine. The proposal was drawn up in accordance with the *Scientific Activity and Higher Education Act* from 2003 (hereinafter: the Act) and the University's general act, the *Statute of UNIZG* from 2005.

The Board for Quality Management, UNIZG, conducted the assessment and evaluation of the newly proposed curriculum. By adopting the request of the Faculty on the implementation of the curriculum by the Senate, one copy of the Senate's Decision was sent to the Ministry (MZOS), which entered the curriculum in the Register of the curricula and issued a Certificate of registration (Accreditation), by which all the conditions for the beginning of the implementation of the new curriculum in academic year 2005/2006 were acquired. Implementation of the adopted curriculum and its quality are monitored by the Senate through the Working group for study programs.

Documents and decisions by which the FVMUZ was granted approval for the conduct of the curriculum.

Following the list of documents and decisions upon which the Faculty was granted approval for the conduct of the curriculum, as well as documents and decisions which define the university study at the FVMUZ as the part of a valid general framework at the national level:

- Pursuant to Article 8, paragraph 2 of the *Regulations on the content and method of registration of higher education institutions*, the Minister (MZOS) issued on <u>24th September 2002</u>, a **Decision** on the procedure of the entry of the FVMUZ into the **Register of Higher Education Institutions** under number 0053 (*Document: class: AP/I602-04/02-07/25*);
- On the basis of the proposition of the Faculty the Commercial Court in Zagreb issued on 30th September 2003, a **Decision** on the entry of the Faculty in the **Register of the Commercial court in Zagreb** under the registration mark with the subject identification number (MBS) 080179720 (*Document: Tt-03/8075-2; MBS: 080179720*);
- Pursuant to Article 135 of the Act on Higher Education Institutions ("Official Gazette"59/96, 14/00, 67/00, 94/00, 129/00), the Decision of the Ministry (MZOS) and the conclusions of the first national external evaluation of the FVMUZ by the National Council for Higher Education (NCHE), the Ministry (MZOS) issued Accreditation to the Faculty on <u>31st March 2004</u>, establishing that the study of veterinary medicine conducted at FVMUZ has the required level, necessary quality and effectiveness of teaching, scientific and professional work (Document: class: 023-03/04-01/0134);
- The new, current curriculum: IUGUSVM was adopted at the FC session on <u>11th March 2005</u> (*Document: AP/I 602-04/05-16/223*);
- The **Accreditation** for the performance of the activity and implementation of the curriculum at the FVMUZ was issued by the Ministry (MZOS) on 2nd June 2005, after a prior positive opinion of the NCHE (*Document: AP/I 602-04/05-16/223*);
- The Faculty gained its second external national accreditation in 2009. Evaluation was conducted by the NCHE. The evaluation was performed according to the annual work schedule drawn up by the NCHE. On 5 March, 2008, at its 51st session, the Council rendered a decision on the appointment of an Expert Committee that would conduct the evaluation of the Faculty. After the completion of the evaluation on the basis of the previously prepared Self-evaluation, the Committee brought proposals, suggestions and the final positive evaluation of the FVMUZ control and assessment.

At its 60th session of 8th April, 2009 and based on the abovementioned evaluation process of the Faculty, the NCHE proposed to the Ministry (MZOS) issuance of FVMUZ Accreditation for the execution and implementation of the study programs.

- The Faculty was issued **Accreditation** for the execution and implementation of the study programs on 2nd June 2009 by the Ministry (MZOS), on the basis of the aforementioned procedure the Faculty's evaluation results (*Document: Class: 602-04/09-275/1; Reg.no. 251-61-01/139-09-1*).
- Academic title or academic degree (DVM) acquired upon completion of the IUGUSVM conducted at the FVMUZ was determined in a **Decision by the Rector's Conference** in 2007. Based on the *Law* on Academic and Professional Titles and Academic Degree ("Official Gazette"107/07), the Rector's Conference brought the Decision on the list of academic titles and academic degrees and their abbreviations according to which the name of the study program run by the FVMUZ is Veterinary Medicine and the level of study is Integrated undergraduate and graduate study.
- The content of the **Diploma Supplement** (DS) was defined on the proposal of the Committee for education and confirmed by the **Decision of the** FC **Session** of <u>16th June 2010</u>. Diploma Supplement was prepared in accordance with "*Instructions, rules and specimen copies of diploma supplements*" issued by the Ministry (MZOS).
The new curriculum is the foundation of education in the field of veterinary medicine. The study is envisioned as a combination of basic subjects, preclinical and clinical veterinary subjects which provides a sufficiently broad education to every doctor of veterinary medicine. Acquisition of "Day-One skills" is achieved by providing relevant scientific knowledge, skills and clinical experience, and it involves the process of evaluation which shows whether the objectives have been met. Today's moment in Croatia's Higher Education Area is thereby anticipated, which is characterized by activity-oriented acceptance of the national qualification framework with the aim of defining competencies which are acquired in the education process at the level of higher education. The FVMUZ has already been oriented towards accepting the national qualification framework by creating a catalogue of knowledge and skills, which has been a good basis for defining the most important learning outcomes. Along with the introduction of ECTS regime in the academic year 2008/09, the preparation of the *"Information package"* started as well, which defines the content of all syllabi of the subjects in the curriculum. It is designed as *"Student guide by years"* and given to every student upon enrolment in the following academic year. The decision on the adoption of Information package was brought by the FC at its session held on 21st January 2009 (*Document: Class: 640-01/09-273/1 Reg. no.: 61-017139-09-3*).

Describe the degree of freedom that the Faculty has to change the curriculum.

The *Law on Quality Assurance in Science and Higher Education* entered into force at the beginning of 2009, which has provided guidance regarding the evaluation of the public study programs according to which the FVMUZ must focus its national external evaluations in the future. Apart from the aforementioned law, the entire registration process, evaluation and possible amendments to the accredited study program, have been in accordance with the following regulations:

- Regulations on the content of accreditation and requirements for issuing accreditation for performance of the activity of higher education, implementation of the study program and re-accreditation of higher education institutions ("Official Gazette 24/10) and;
- *Regulations on the evaluation procedure of study programs of university undergraduate, graduate, integrated undergraduate and graduate and professional studies, UNIZG,* from 13th July 2010.

The Regulations stipulate:

- 1 Evaluation of new study programs and issuing of Accreditation,
- 2 Amendments to the accredited study programs,
- 3 Periodic internal evaluations of the study programs.

Initiation procedure for the amendments to the accredited study programs

The procedure for the amendments to the study programs is initiated by the FC the proposal of the Committee for integrated undergraduate and graduate study (CIUGS). Amendments to the study program shall be adopted and published before the public competition for admission in the first year of study. All decisions on the amendments to the curriculum shall be stored in hard copy in the Faculty and University Archives, and all the changes based upon these decisions shall be recorded in the appropriate information system.

According to existing national laws and regulations, the FVMUZ as the holder of the accredited curriculum, has been allowed to change the curriculum a few times so far, but the subjects within the total amount of 80% of ECTS from the total curriculum could not be changed in relation to the original accredited curriculum.

Minor amendments to the curriculum resulted in syllabus change and changes in the content of the program are allowed up to 20%, which do not significantly alter the curriculum, final competencies of students and their qualifications (professional profile). In case the procedure for the amendments to the curriculum has been initiated, the description of the amendments is submitted to the Board for Quality

Management, UNIZG **W**orking **G**roup for **S**tudy **P**rograms (WGSP) in order to record and confirm the amendments. After the Board's confirmation, the Decision on minor amendments to the curriculum may be carried out at the Faculty. According to the Regulations, periodic report on amendments up to 20%, is submitted to the University's working body (Council for Biomedicine) in order to record the changes. According to the recommendations of the Board for Quality Management, UNIZG, there are amendments to the changes in the study that do not need the University's approval. Also, there are changes in syllabus which do not alter the expected learning outcomes and competencies specified in the accredited syllabus. Such amendments are not required to be sent to the Board for Quality Management. The FC adopts the decision on the amendments before the publication of the syllabus of the study program. The FVMUZ, through the FC, adopts some of the permitted amendments as well as regular updating of the curriculum.

Outline how decisions on curriculum matters and course content are taken within the Faculty.

Based on the guidelines of the new *Scientific Activity and Higher Education Act* of 2003, the *Statute of the University* of 2005, EAEVE GE recommendations of 2003 and the positive evaluation by the **N**ational **C**ouncil for **H**igher **E**ducation (NCHE), the process of the reorganization of the teaching began, as we had stated previously, in academic year 2004/05. There were discussions on the conduct and the structure of veterinary education and production of national documents in relation to education and mandatory practice of future veterinarians. Rapid development of veterinary science followed at the same time. The FVMUZ prepared a new curriculum during academic year 2004/05 and adapted it to the requirements of the Bologna principles.

The aim of the reorganization was to define the core curriculum of the study program of the FVMUZ in Croatia and to encourage the development of elective courses. The new curriculum contains fundamental changes as compared to the old program from 1997. The main changes have been listed in the introductory chapter *Introduction by the Dean*, Subchapter *Main changes to the study program*, of this SER. In addition to the daily care that has been given to improvement of classes in all courses, corrections of the program and minor amendments have been entered into the program gradually, each academic year. This means that the currently valid curriculum has been changing gradually in order to harmonize it as much as possible with teaching standards recommended by EAEVE, as specified in the SOP manual.

The current curriculum was changed seven times in the period between 2007 and 2012 in the form of minor amendments to the aforementioned curriculum. The adopted minor amendments to the accredited study program can be divided in two categories: those performed on core courses and those performed on elective courses.

Proceedings and decisions on previous reorganizations and changes in the current curriculum at the FVMUZ, *between 2005 and 2013:*

Process of the adoption of amendments to the previously accepted curriculum

The process of the amendments to the previously accepted study programs was initiated by subject teachers or it was an initiative of the Faculty's **C**ommittee for Integrated **U**ndergraduate and **G**raduate **S**tudy (CIUGS) based on the results of the student evaluations, analyses, simulations and discussions. Based on the teachers' proposals or the initiative of the CIUGS, the same Committee analysed the proposed change taking into account its justification, totality of organization and teaching at the Faculty and the student workload within a particular study program. In case of justification of the proposal, the CIUGS passed the proposal to the FC for debate and vote. This procedure is in accordance with the existing Regulations/ Statute. Although it may seem that there have been many amendments to the study program, it must be noted that they reflect the teacher's sense of responsibility towards implementing a quality program.

Decisions and conclusions of the FC sessions with regard to minor amendments to the current curriculum

Below are the accepted decisions of the FC sessions regarding minor amendments, prerequisites for taking exams, reposition of subjects and grading system after the curriculum had been accepted:

- 1 **Decision** on the acceptance of amendments to the study program IUGUSVM was adopted at the FC session of <u>19th December 2007</u>. The amendments were related to the reposition of subjects, change in the forms of teaching, increase and decrease in teaching hours of certain core and elective subjects (*Document: Class: 640-01/07-237/1, Reg.no.: 61-01/139-07-10*).
- 2 Amendments from Decision under item 1 were confirmed by UNIZG Senate's Decision (Decision of UNIZG on the adoption of amendments to the IUGUSVM study program of <u>10th</u> June 2008) (*Document: class: 602-04/08-22/34, Reg. No.: 61-01/139-08-1*). The amended program was for the first time implemented on students who enrolled the first year of study in academic year 2008/09.
- 3 **Decision** on prerequisites for enrolling and taking certain exams by semesters was adopted at the FC session of <u>20th December 2007</u> (*Document: class: 640-01/07-237/1, Reg. No. 61-01/139-07-9*).
- 4 Decision on the reposition of elective subjects in the current study program from 1st to 12th semester, was adopted at the FC session of <u>18th June 2008</u> (*Document: class: 640-01/08-254/1, Reg. no.: 61-01/139-08-5*).
- 5 **Decision** on the implementation of grading system based on the Bologna process was adopted at the FC session of <u>21st January 2009</u>. This led to a consistent application of public, adequate and unambiguous criteria and rules which were introduced to all students in all study programs (*Document: class: 640-01/09-273/1, Reg.no.: 61-01/139-09-3*) (see Chapter 5 Section 5.1.3).
- 6 **Decision** on the acceptance of amendments for nine subjects was adopted at the FC session of 20th May 2009. Changes relate to the repositioning of the subjects, change in the forms of teaching, increase and decrease in teaching hours and the changes in the assigned ECTS for some courses within the current curriculum.
- 7 **Decision** on the acceptance of a minor amendment to one subject (Physics and Biophysics) was adopted at the FC session of <u>22nd September 2010</u> (*Document: class: 640-01/10-304/2*). The amendment related to the change of the teaching hours.
- 8 **Decision** on the acceptance of minor amendments to eight subjects was adopted at the FC session of <u>16th June 2010</u> (*Document: class: 640-01/10-305/3*). Amendments related to renaming of four subjects, change in the form of teaching, change in teaching hours and the position of the subjects within semesters.
- 9 **Decision** on the prerequisites for enrolling subjects and taking exams was adopted at the FC session of <u>16th June 2010</u> (*Document: class: 640-01/10-305/3*).
- 10 **Conclusions** on the implementation and syllabus of 6th year of study which includes obligatory extramural work and "clinical rotations" for obligatory subjects (CFW) and (PCW), were adopted at the FC session of <u>26th January 2011</u> (*Document: Minutes of 4th regular FC session of 26 January, 2011*).
- 11 **Decision** on minor amendments to the curriculum (up to 20%) and on regular modernization of subjects was adopted at the FC session of 25th May 2011 and <u>27th June 2011</u> (*Document: class: 640-01/11-304/11 and 640-01/11-304/9*). The amendments related to somewhat bigger changes in connection to the improvements of certain subjects, as follow:
 - Reallocation of the teaching hours for different forms of teaching within the number of hours allocated to the subject in favour of practical training of students (for 11 subjects),
 - Change of semester in which the subject is taught (for 1 subject),
 - Merging a two-semester subject in a one-semester subject (1 subject).

Working group for study programs of UNIZG adopted the proposed amendments on 6th July 2011 *(Document: class: 602-04/11-22/57)*. As a result, the Faculty acquired the possibility of implementing the IUGUSVM program with included amendments in academic year 2011/12.

The possibility of improving the teaching of **elective subjects** (electives of Type 1 which the student may take as free choice) was discussed in 2012 (see further details on the type of subjects under 4.1.2.1 of this Chapter). Their analysis indicated the existence of electives which had not been active for years (for different reasons). This suggested a mandatory review of their further existence. Pursuant to the agreements based on discussions held at the Divisions, the Committee proposed abolishment of seven (7) existing electives, and introduction of nine (9) new, mostly clinical subjects. The newly approved electives are those which are strongly oriented towards applied aspects of future veterinary work, by helping students to attain a certain level of specialization (Emergency and Intensive Veterinary Medicine, Diseases and Reproduction of Working and Sport Animals, Advanced Diagnostics and Therapy of Diseases of Digestive System Diseases of Dogs and Cats, Diagnostic Veterinary Cytology, Dietetics of Animals, Comparative Nutrition and Metabolism of Domestic and Wild Animals, Biological Traces and Evidence in Veterinary Forensics, Fundamentals of Agronomy, Agricultural Economics and Rural Development). A decision on the new position of electives in semesters was adopted too. Thereby, new curriculum offered most of the electives, grouped according to "topics", at the end of the study, giving students a chance to discover their preferences towards certain fields. Mentioned changes enable that in the last, sixth year of study within a free selection of subjects, students choose among clinical subjects which reinforce their final competencies, which had not been the case until then. In connection with the above, at the FC session of 23rd May 2012 we adopted:

12 **Decision** on the adoption of minor amendments to the curriculum (up to 20%) and the position of electives in semesters (*Document: class:640-01/12-305/11*). All the changes regarding the implementation of the curriculum were recorded in relevant documents, based on the approval of the FC and UNIZG.

Based on the results of student evaluations, analyses, simulations and discussions, we have regularly revised the learning outcomes at necessary levels (teaching units, subjects) and where appropriate, incorporated them in the curriculum in the form of amendments. We have been guided by two key documents (Catalogues) adopted at the Faculty level. As a result of defining the acquired knowledge and skills, *Catalogue of knowledge and skills in obligatory subjects* and *Catalogue of knowledge and skills in electives of the IUGUSVM* were published. More than a hundred authors directly participated in the writing of the Catalogue of knowledge and skills, and there were many others who also participated in revising the material. By publishing these catalogues, the Faculty has reaffirmed its decision to educate competent doctors of veterinary medicine, which means that upon graduation, they will acquire the desired standard of knowledge, skills and attitudes. These publications were assigned to define the objectives of graduate medical education, and they differ in subject-based content, structure of teaching and the teaching process, competencies, learning outcomes, list of changes related to the portfolio, teaching methods, etc. A detailed list of specific knowledge and skills is shown for each subject together with the level of training for performing a specific skill. The documents were accepted in the following decisions:

- 1 The **Decision** of FC of <u>17th July 2009</u> on the adoption of the "*Catalogue of knowledge and skills with learning outcomes for core subjects of the IUGUSVM" (<i>Document: class: 640-01/09-289/1*);
- 2 The **Decision** of the Faculty Council of <u>24th</u> <u>February 2010</u>, on the adoption of the "Catalogue of knowledge and skills with learning outcomes for **electives** and the draft of the Catalogue of knowledge and skills for **obligatory subjects relating to the study tracks**" (Document: class: 640-01-302/1).

With the creation of the listed documents, conditions were made for the precise definition of the specific **learning outcomes** for core subjects. Therefore, immediately after the completion of the catalogue we began with formulation of learning outcomes on the level of core subjects. The adoption of the aforementioned documents provided an adequate starting point for the participation in the development of the qualification standards of the Croatian Qualifications Framework (CROQF).

Regular periodic checks of achieving the planned learning outcomes at the level of subjects followed, and they were conducted as part of internal quality control of teaching through student surveys.

Outline how decisions are taken on the allocation of hours between the various subjects and on the balance between theoretical and practical teaching (Tables 4.1, 4.2 and 4.3).

The process of reallocation of teaching hours for different forms of teaching

All issues related to teaching, including increasing the hours of practical training compared to theoretical training related with individual subjects, have been suggested by Heads of departments/clinics and Heads of subjects. They are discussed within the Faculty's Divisions, and then, suggestions are submitted for discussions and harmonization to the CIUGS, which is also in charge of proposing solutions to the FC.

It is visible that basic disciplines are taken in the first two years of study, and they are allocated a larger number of theoretical teaching hours, while the relative number of hours for supervised practical training increases in preclinical and clinical disciplines, as shown in Tables 4.1 a, b, c. In the last two years of study (fifth and sixth) the priority and emphasis is given to practical and more importantly clinical training. Core subjects Ambulatory (Mobile) Clinic, hereinafter: AMC (120 hours per student), Clinical Field Work, hereinafter: CFW, (180 hours per student) and Professional Clinical Work, hereinafter: PCW, (120 hours per student), Herd Health, hereinafter: HH (15 hours per students) and clinical training included in core clinical subjects (see Table 4.5) are represented by a large number of hours intended exclusively for obligatory clinical and practical training in small groups of students at & outside the Faculty (obligatory extramural work).

In the last few academic years teaching hours intended for practical training in relation to theoretical training, has been increased for the following subjects: *Food Hygiene and Technology, Infectious Diseases of Domestic Animals, Special Veterinary Pathology, Hygiene and Housing of Animals, Environment, Animal Welfare and Behaviour, Physics and Biophysics, Molecular Biology and Genomics in Veterinary Medicine, Botany in Veterinary Medicine*, etc.

Indicate the presence and disposition of an integrated curriculum. Describe the degree of integration present and amount of time devoted for EU- and non-EU-listed subjects (Table 4.4)

4.1.1 POWER OF SUBJECTS AND TYPES OF TRAINING

4.1.1.1 POWER OF SUBJECT

a) "Core curriculum" subjects

Except for the *core subjects* which are obligatory for all students, the curriculum includes **electives** which students take as a free choice. The curriculum also includes three study tracks. Study tracks included *obligatory subjects related to individual track* and *electives related to individual track*.

Key features of the new curriculum during the 12-semester study are:

- Core subjects which are obligatory for all students are offered in the first nine semesters and partially in the tenth and eleventh semester of the study.
- The list of core subjects obligatory for all students, teaching hours and form of teaching for each of the study tracks is outlined in Tables 4.1a,b,c, 4.2, 4.3a,b,c and 4.4.
- The number of core subjects which all students enroll in from their 1st to 6th year of study is 59 (obligatory subjects related to individual track are excluded), while the number of <u>electives</u> (Type 1) which students take as a free choice is 72.
- Upon enrolment in 5th year, the student decides on one of the following study tracks:

- Small companion animals (SCA);
- Farm animals and horses (FAH);
- <u>Veterinary public health (VPH).</u>
- By selecting a study track, the student automatically decides on the group of subjects in the 5th and 6th year of study which make up the selected study track. The obligatory subjects related to individual track are listed in Tables 4.3a,b,c. These subjects are taught in the total of 180 hours, out of which 72 to 122 hours are reserved for theoretical training and 58 to 108 hours for practical training. The hours for the obligatory subjects related to individual track are not shown in Table 4.2, since not all students enroll in these subjects, but only those who enroll in a selected study track.
- Upon graduation, the Faculty issues a single document (so called "Single diploma") and Diploma Supple-• ment with the name of the study without specifying the selected study track. The difference is only visible in the list of acquired skills.
- *<u>Electives</u> are divided into two categories:*
 - *Electives* (Type 1) are offered to all students from 2nd to 12th semester (see Table 4.3);
 - *Electives* (Type 2), which are offered only within certain study tracks and they bring at least 7.5 ECTS credits (see Table 4.3 and 4.4 a,b,c).
- In the course of the study it is obligatory to enroll in electives (Type 1) which may bring at least 27 ECTS.
- As some semesters are not equally burdened with subjects which are obligatory for all students, the student is required to enroll in Type 1 and Type 2 electives, or at least that many electives in a given semester which will make a total of 30 ECTS. There is an exact number of electives offered to each year of study.
- For each obligatory or elective subject, the form of teaching and method of examination system in accordance with the ECTS are determined. The ratio of practical and/or clinical training is also determined by ECTS, as well as preparation of a graduation thesis. Extracurricular activities such as Physical training are not measured by the ECTS, they are conducted outside the schedule in the first and the second year of study.

Subject(s)	Number of ECTS per subjects/sciences	Percentage of the total number of ECTS
1 - Basic subjects	19.5	5.855 %
2 - Basic sciences	77.5	23.270 %
3 - Clinical sciences	169.0	50.750 %
4 - Animal production	31.0	9.310 %
5 -Public health	12.5	3.750 %
6 - Professional knowledge	23.5	7.060 %
23	22 ECTS (obligatory subjects) + 27 (elective subj	$rac{1}{2}$

Reallocation of ECTS credits in the new curriculum according to subjects/sciences and relationship between obligatory and elective subjects.

333 ECTS (obligatory subjects) + 27 (elective subjects) = 360 ECTS

- Teaching of individual subjects is organized in determined periods of time, as teaching in cycle courses or block teaching. Furthermore, many subjects have been "verticalized".
- The number of hours of obligatory extramural work is shown in Table 4.5 and it is in total 546 teaching hours per all students. Students from a particular study track are added another 19 (SCA), 87 (FAH) and 13 (VPH) hours of practical extramural training. During practical work students rotate in small groups, so that each student is able to get to all scheduled location for the purpose of obligatory extramural work.
- Obligatory extramural work is held in veterinary organizations and other institutions, faculty educationalhunting ground "Črnovšćak", as well as on all animals (domestic & wildlife) farming facilities in the radius of 70 km in the Zagreb cycle area. The obligatory subject CFW is exception, because extramural work of CFW is conducted all around Croatia, depending on the student's place of living.
- The number of teaching hours at the FVMUZ Clinics intended solely for clinical work is shown in Section 4.1.6.1. Teaching hours intended for clinical work depend on the enrolled study track and they amount are 718 (SCA), 672 (FAH) and 672 (VPH) hours per student of the total study time.

- The Faculty signed contracts for cooperation with different institutions for academic years 2010/11, 2011/12, 2012/13 and 2013/14 which stipulate mutual rights and obligations in the cooperation regarding the conduct of professional field practice in the amount of 180 hours per student across the Republic of Croatia (see list in Annex I to Chapter 5).
- The competences are acquired by learning clinical skills, propaedeutic and by learning and practicing clinical veterinary science through clinical subjects. Knowledge and skills are acquired gradually during the study and become integrated in clinical rotations, which enable the student to perform professional clinical practice under competent supervision.
- Academic year begins on 1st October of the current year and ends on 30 September of the following year. It is divided into semesters, of which each lasts 15 weeks and teaching is conducted in cycles for particular subjects. As a rule, academic year has 44 working weeks, with 30 weeks for teaching and 14 weeks which students use for consultations, preparation of exams and exams. There are no other forms of teaching during exam period according to the University's Statute.
- The syllabus for the full-time students is based on the student workload of up to 30 hours of direct teaching in one week.
- One ECTS represents 25 to 30 student working hours. They include active training, exams and all the necessary activities related to taking examinations.
- Within the ECTS, one study year has 60 ECTS (the total student workload during the year), or one semester equals 30 ECTS credits. By completing the 12-semester curriculum, the student may acquire minimally 360 ECTS.

4.1.1.2 TYPES OF TRAINING

In the context of types of training conducted at the FVMUZ, the following classification is being used:

There cannot be absolute distinction between the terms used to distinguish between different types of training. Overlap is inevitable. The terminology reported in the EAEVE SOPs has been carefully considered when drafting the text and tables of this Chapter.

4.1.1.2.1 Teoretical training

Self-directed learning

Self-directed learning encompasses faculty controlled, non-supervised, scheduled curricular sessions, where students use defined teaching material provided by the Faculty (LMS, CARNet, e-learning etc.). In order to achieve the set learning outcomes, teachers and students cooperate intensively with an unlimited flow of information, with the help of communication technology to create virtual environment. This mixed mode of teaching is a combination of classical classroom teaching and teaching with the help of advanced communication technology, tailored to specific courses. Students perform individual tasks, continuous self-evaluation and self-assessment of acquired knowledge. The number of hours may exceed the number allocated for the subject.

• Number of students per group depending on the types of training

Certain types of training are conducted in small groups. Standard specification for determining the group size is stipulated by existing regulations which we mention further in the text. Methodical exercises up to 15 students, practicum, laboratory and field exercises up to 10 students, clinical exercises up to 6 students and special clinical exercises (gynaecological, surgical, internist, radiological, etc.) up to 4 students. The number of students in different teaching groups on undergraduate and graduate education is structured according to Regulations on the basics of financing of higher education in public higher education institutions ("Official Gazette" 25/96) and Collective Agreement for Science and Higher Education ("OG"101/02, Annex "OG" No.203/03, Appendix III, "OG" 28/06 and Appendix IV, "OG" 11/08 and "OG"142/10).

4.1.2 UNDERGRADUATE CURRICULUM FOLLOWED BY ALL STUDENTS

4.1.2.1 CURRICULUM HOURS

General outline of direct and indirect (*Self-directed learning*) teaching hours in the new curriculum according to different types of training, including the distribution of hours by years of study within the three offered tracks is shown in Table 4.1 (old curriculum) and Tables 4.1a,b,c and 4.2 (new curriculum).

Lists of all core subjects taught during each year of study (1st to 6th) with the number of allocated hours and types of training are shown in Tables 4.2 and 4.2bis.

Subjects offered as *electives* (Type 1), according to subject groups and number of allocated hours of direct teaching are shown in Table 4.3.

Group of *obligatory subjects related to individual study track* (10th and 11th semester) is shown in Tables 4.3a,b,c and a list of electives within study tracks (Type 2) with allocated hours is shown for each study track in Table 4.4a,b,c. Curriculum hours in obligatory subjects not listed in Table 4.2, including final graduation thesis (Diploma work) are shown in Table 4.4.

Curriculum hours allocated to obligatory extramural work are shown in table 4.5.

This section makes a distinction between curriculum hours to be taken by every student and those offered as electives or within a given track. Specific information is also requested on subjects other than those specified in table 4.2.

			Hours of training			
YEAR	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
First year	240	420	30	90	210+60	1050
Second year	315	375	105	105	105+60	1065
Third year	345	330	135	90	90	990
Fourth year	270	450	75	315	105	1215
Fifth year	360	285	180	420	75	1320
Sixth year	-	-	-	-	-	-
Total	1530	1860	525	1020	705	5640

Table 4.1: General table of curriculum hours taken by all students (old curriculum)

* Elective subjects + physical education (60+60) in first and second year of study

Table 4.1a: General table of curriculum hours taken by all students (new curriculum)Study track: Small Companion Animals (SCA)

	Th	eoretical tra	ining	Supervise	d practical t Faculty	raining on	Other	Total
YEAR	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Electives workload + SOPT + CFW + PCW + AMC + HH + FH/PH + physical education	Theoretical training+ Supervised practical training+Other (A+B+D+E+F+G)
	A	В	С	D	E	F	G	
FIRST	205	64	500	270	164	0	60 ^a + 30 ^b +29 ^c	1322
SECOND	269	88	545	261	92	5	60 ^a + 90 ^b + 22 ^c	1432
THIRD	321	25	116	251	100	72	68 ^b	953
FOURTH	268	0	128	24	4	386	82 ^b + 35 ^c	927
FIFTH	225	34	361	35	59	156	52 ^b + 60 ^f + 15 ^c +46 ^g	
Study track SCA	0	0	0	29	0	16	98 ^b	1186
SIXTH	51	26	157	49	0	53	30 ^b +180 ^d +84 ^e + 60 ^f + 15 ^h	055
Study track SCA	50	22	0	29	0	30	4 ^c + 15 ^b	625
Total	1389	259	1807	948	419	718	1135	6675

^a physical education; ^b electives workload; ^c supervised, outside practical training (SOPT); ^d CFW (obligatory extramural work); ^e PCW (obligatory extramural work and training in a veterinary practice – private practice, HVI, MA); ^f AMC; ^g training in a veterinary practice or in Food Hygiene/Public Health (FH/PH); ^h HH (work on farms). Curriculum hours from rows A, B, D, E, F and G specified in table 4.2, 4.3, 4.4 and 4.5.

	Th	eoretical tra	ining	Supervise	d practical t Faculty	raining on	Other	Total
YEAR	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Non- linical Clinical SOPT + CFW + PCW nimal work AMC + HH + FH/PH work physical education		Theoretical training+ Supervised practical training+Other (A+B+D+E+F+G)
	А	В	С	D	E	F	G	
FIRST	205	64	500	270	164	0	60 ^a + 30 ^b + 29 ^c	1322
SECOND	269	88	545	261	92	5	60 ^a + 90 ^b + 22 ^c	1432
THIRD	321	25	116	251	100	72	68 ^b	953
FOURTH	268	0	128	24	4	386	82 ^b + 35 ^c	927
FIFTH	225	34	361	35	59	156	52 ^b +60 ^f +15 ^c +46 ^g	
Study track FAH	10	25	0	0	0	0	52 ^b + 45 ^c	1175
SIXTH	51	26	157	49	0	53	30 ^b + 180 ^d + 84 ^e + 60 ^f +15 ^h	0(2
Study track FAH	13	30	0	5	0	0	68 ^b + 42 ^c	603
Total	1362	292	1807	895	419	672	1225	6672

Table 4.1b: General table of curriculum hours taken by all students (new curriculum) Study track: Farm Animals and Horses (FAH)

^a physical education; ^b electives workload; ^c supervised, outside practical training (SOPT); ^d CFW (obligatory extramural work); ^e PCW (obligatory extramural work and training in a veterinary practice – private practice, HVI, MA); ^fAMC; ^gtraining in a veterinary practice or in Food Hygiene/Public Health (FH/PH); ^h HH (work on farms). Curriculum hours from rows A, B, D, E, F and G specified in table 4.2, 4.3, 4.4 and 4.5.

Table 4.1.c: General table of curriculum hours taken by all students (new curriculum) Study track: Veterinary Public Health (VPH)

	Th	eoretical trai	ning	Supervise	ed practical tr Faculty	aining on	Other	Total
YEAR	Lectures	Seminars	Samo učenje	Laboratory and desk based work	Non- clinical ani- mal work	Clinical work	Electives workload + SOPT + CFW + PCW + AMC + HH + FH/PH + physical education	Theoretical trai- ning+ Supervised practical training+Other (A+B+D+E+F+G)
	А	В	С	D	E	F	G	
FIRST	205	64	500	270	164	0	60 ^a +30 ^b +29 ^c	1322
SECOND	269	88	545	261	92	5	60 ^a +90 ^b +22 ^c	1432
THIRD	321	25	116	251	100	72	68 ^b	953
FOURTH	268	0	128	24	4	386	82 ^b +35 ^c	927
FIFTH	225	34	361	35	59	156	52 ^b +60 ^f +46 ^g +15 ^c	
Study track VPH	39	17	0	0	0	30	45 ^b	1174
SIXTH	51	25	157	49	0	53	30 ^b +180 ^d + 84 ^e +60 ^f +15 ^h	962
Study track VPH	49	17	0	0	0	11	13 ^c +68 ^b	603
Total	1427	270	1807	891	419	713	1144	6671

^a physical education; ^b electives workload; ^c supervised, outside practical training (SOPT); ^d CFW (obligatory extramural work); ^e PCW (obligatory extramural work and training in a veterinary practice – private practice, HVI, MA); ^fAMC; ^straining in a veterinary practice or in Food Hygiene/Public Health (FH/PH); ^b HH (work on farms). Curriculum hours from rows A, B, D, E, F and G specified in table 4.2, 4.3, 4.4 and 4.5.

Table 4.2: Curriculum hours in EU-listed subjects taken by each student (new curriculum)

		"Core" subjects taken by every student							
		The	oretical tra	ining	Supervise	ed practical tr	aining	Practical	Total
	Subject	Lectures (A)	Seminars (B)	Self directed learning (C)	Laboratory and desk based work (D)	Non-clinical animal work (E)	Clinical Training (F)	training (extramu- ral work) Other* (G)	
	a) Physics in: Physics and Biophysics	16	0	0	38	0	0	0	54
cts	b) Chemistry in: Medical Chemistry	20	0	0	34	0	0	0	54
ic Subje	c) Animal biology in: Zoology	15	20	0	30	0	0	10	75
1. Basi	d) Plant biology in: Botany in Veterinary Medicine	10	0	0	10	0	0	0	20
	e) Biomathematics (biostatistic) in: Basic Statistics in Veterinary Medicine	15	0	67	15	0	0	0	97
	1- Total number of hours	76	20	67	127	0	0	10	300
	a) Anatomy (incl. histology and embryology) in: Anatomy with Organogenesis of Domestic Animals I II III	53	0	312	0	227	0	0	592
	in: Histology with General Embriology	30	0	0	60	0	0	0	90
	 b) Physiology and Pathophysiology in: Phisiology of Domestic Animals I i II in: Pathophysiology I i II 	75 60	25 0	0 0	106 60	4 0	0 0	0 0	210 120
	 c) Biochemistry, cellular and molecular biology and d) Genetics (including molecular genetics) in: Molecular Biology and Genomics in Veterinary Medicine 	15	15	0	10	0	5	0	45
	in: Biochemistry in Veterinary Medicine	30	10	0	32	0	0	0	72
ces	in: Animal Breeding and Production	3	1	0	2	0	0	0	6
c Scien	e) Pharmacology and pharmacy In: Pharmacology	45	5	46	29	6	0	0	131
2. Basic	f) Toxicology (including environmental pollution)	26	5	0	23	0	0	0	54
	 g) Microbiology (including virology, bacte- riology and mycology) in: General Microbiology in: Special Microbiology 	12 15	12 15	0 0	30 30	0 0	0 0	0 0	54 60
	h) Immunology	15	0	0	15	0	0	0	30
	 i) Epidemiology (including scientific and technical information and documenta- tion methods) 	_		-		-	-	-	
	in: Veterinary Epidemiology in: Infectious Diseases of Domestic Animals	8 4	0	70 0	16 0	0	0	0	94 4
	j) Professional ethics in: Introduction to Veterinary	0	3	0	0	0	0	0	3
	2- Total number of hours	391	91	428	413	237	5	0	1565

64 • FVMUZ Self Evaluation Report 2011/2012

a) Oobstetrics	10	0	0	0	0	45	0	55
b) Pathology (including pathological								
anatomy)	20	0	0	0	60	0	0	90
in: Special Veterinary Pathology	50 60	0	0	45	30	0	0	135
c) Parasitology								
in: Parasitology and Parasitic Diseases	30	0	0	44	4	12	0	90
 d) Clinical medicine and surgery (including anaesthetics) in: Surgery, Orthopaedics and Ophthalmology I II i III 	90	0	0	8	0	142	0	240
in: Internal Diseases	90	0	0	0	0	120	0	210
e) Clinical lectures on various domestic animal, poultry and other animal species								
in: Poultry Diseases in: Infectious Diseases of Domestic	25	26	157	0	0	17	1	226
Animals	67	0	0	16	0	81	0	164
f) Field veterinary medicine				•		0	400	100
in: Ambulatory (Mobile) clinics (AMC)	0	0	0	0	0	0	120 150	120 150
in: Clinical Field Work (CFW)	0	0	0	0	0	0	36	36
g) Preventive Medicine in: Herd Health (HH)	0	0	0	0	0	0	15	15
In: Infectious Diseases of Domestic Animals	З	0	0	0	0	8	0	11
in: Veterinary Epidemiology	1	0	0	2	0	0	0	3
h) Diagnostic imaging (including radiology)								
in: General and Clinical Radiology	15	0	0	0	0	30	0	45
In: Radiation Hygiene	15	4	0	11	0	0	0	30
i) Reproduction and reproductive disorders in: Obstetrics and Reproduction	80	0	0	0	0	75	30	185
j) Veterinary state medicine and public health								
in: Veterinary Epidemiology	1	0	0	2	0	0	0	3
in: Infectious Diseases of Domestic	1	0	0	0	0	0	0	1
Regulatory Affairs	13	28	0	0	0	0	0	41
k) Veterinary legislation and forensic medicine								
in: Forensic Veterinary Medicine	15	0	0	30	0	0	0	45
l) Therapeutics in: Methods of Physical Therapy and								
Diagnostics	15	0	0	0	0	15	0	30
 m) Propaedeutics (including laboratory- diagnostic methods) in: Clinical Propedeutics 	45	0	0	0	0	60	0	105
3- Total number of hours	606	58	157	158	94	605	352	2030

	a) Animal production								
	in: Animal Breeds Characteristics	12	9	60	24	0	0	4	109
	in: Animal Breeding and Production	19	8	132	14	0	0	8	181
	in: Biology and Pathology of Aquatic	11	0	62	10	0	11	4	98
	Organisms								
	in: Biology and Pathology wof	13	0	66	8	0	7	8	102
	Beneficial Insects	2	0	0	5	С	Л	1	17
	h) Asias lastatities	2	0	0		2	4		17
	b) Animal nutrition	15	0	0	30	0	0	0	45
	in: Applied Animal Nutrition	45	0	0	15	11	0	4	75
ctio	c) Agronomy								
npc	in: Veterinary Economics	2	0	0	2	0	0	0	4
Pro	in: Game Breeding and Management	0	0	0	0	0	0	1	1
mal	d) Rural economics								
Ani	in: Veterinary Economics	6	0	0	10	0	0	0	16
4	e) Animal husbandry								
	in: Animal Breeds Characteristics	3	1	53	6	0	0	1	64
	in: Animal Breeding and Production	16	6	131	9	0	0	4	166
	in: Game Breeding and Management	2	0	0	1	2	4	3	12
	f) Veterinary hygiene								
	in: Hygiene and Housing of Animals	39	21	204	15	14	0	6	299
	g) Animal ethology and protection								
	in: Environment, Animal Behavior and	16	18	86	6	0	0	0	126
	weilare								
	4- Total number of nours	201	63	794	155	35	26	47	1315
	a) Inspection, and contro of animal food-								
	and the repective feedstuff production								
	and the repective recustuin production			20	0				
_	in: Foodf Hygiene and Technology	0	0	20	0	0	0	13	33
alth	in: Foodf Hygiene and Technology	0	0	20	0	0	0	13	33
: Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology 	0	0	171	0	0	0	13	33 251
ublic Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation 	0 40	0	171	0	0 40	0	13 0	33 251
/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology 	0 40 20	0	171	0	0 40 19	0	13 0 0	33 251 189
ene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical 	0 40 20	0	171 150	0	0 40 19	0	13 0 0	33 251 189
Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and 	0 40 20	0	171 150	0	0 40 19	0	13 0 0	33 251 189
od Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) 	0 40 20	0	171 150	0	0 40 19	0	13 0 0	33 251 189
Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology 	0 40 20 0	0 0 0 0 0	20 171 150 20	0	0 40 19 0	0 0 0 0 0 0	13 0 0 33	33 251 189 53
5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) 	0 40 20 0 0	0	20 171 150 20 0	0	0 40 19 0 0	0	13 0 0 33 30	33 251 189 53 30
5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) 	0 40 20 0 0 0	0 0 0	20 171 150 20 0 0	0 0 0 0 0 0	0 40 19 0 0 0	0	13 0 0 33 30 84	33 251 189 53 30 84
5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Poultry Diseases 	0 40 20 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	20 171 150 20 0 0 0	0 0 0 0 0 0 0 0	0 40 19 0 0 0 0 0	0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6	33 251 189 53 30 84 6
5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 	0 40 20 0 0 0 0 60	0 0 0 0 0 0 0 0 0 0 0 0	20 171 150 20 0 0 0 0 361	0 0 0 0 0 0 0 0 0 0	0 40 19 0 0 0 0 0 0 59	0 0 0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166	33 251 189 53 30 84 6 646
lge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics 	0 40 20 0 0 0 0 60	0 0 0 0 0 0 0 0 0 0	20 171 150 20 0 0 361 0	0 0 0 0 0 0 0 0 0 0	0 40 19 0 0 0 0 59	0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166	33 251 189 53 30 84 6 646
vledge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics 	0 40 20 0 0 0 0 0 60 3	0 0 0 0 0 0 0 0 0 0	20 171 150 20 0 0 361 0	0 0 0 0 0 0 0 0 0 0 7	0 40 19 0 0 0 0 59 0	0 0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166 0	33 251 189 53 30 84 6 646 646
(nowledge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics b) Veterinary certification and report writing 	0 40 20 0 0 0 0 60 3	0 0 0 0 0 0 0 0 0 0	20 171 150 20 0 0 361 0	0 0 0 0 0 0 0 0 0 0 0 0 0 7	0 40 19 0 0 0 59 0	0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166 0	33 251 189 53 30 84 6 646 10
al Knowledge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics b) Veterinary certification and report writing in: Veterinary Legislation and 	0 40 20 0 0 0 0 60 3 2	0 0 0 0 0 0 0 0 0 2	20 171 150 20 0 0 361 0 0	0 0 0 0 0 0 0 0 7 7	0 40 19 0 0 0 59 0	0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166 0	33 251 189 53 30 84 6 646 10
sional Knowledge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics b) Veterinary certification and report writing in: Veterinary Legislation and Regulatory Affairs 	0 40 20 0 0 0 0 60 3 2	0 0 0 0 0 0 0 0 0 2	20 171 150 20 0 0 361 0 0	0 0 0 0 0 0 0 0 7 0	0 40 19 0 0 0 59 0	0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166 0	33 251 189 53 30 84 6 646 10 4
ofessional Knowledge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics b) Veterinary certification and report writing in: Veterinary Legislation and Regulatory Affairs c) Career planning and opportunities 	0 40 20 0 0 0 0 0 60 3 2	0 0 0 0 0 0 0 0 2	20 171 150 20 0 0 361 0 0	0 0 0 0 0 0 0 0 0 7 0	0 40 19 0 0 0 59 0	0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166 0 0	33 251 189 53 30 84 6 646 10 4
Professional Knowledge 5. Food Hygiene/ Public Health	 in: Foodf Hygiene and Technology b) Food hygiene and technology in: Foodf Hygiene and Technology c) Food science including legislation in: Foodf Hygiene and Technology d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place) in: Foodf Hygiene and Technology in: Professional Clinical Work (PCW) in: Clinical Field Work (CFW) in: Poultry Diseases 5- Total number of hours a) Practice management in: Veterinary Economics b) Veterinary certification and report writing in: Veterinary Legislation and Regulatory Affairs c) Career planning and opportunities in: Introduction to Veterinary 	0 40 20 0 0 0 60 3 2 2	0 0 0 0 0 0 0 0 2 3	20 1771 150 20 0 0 361 0 0 0 0	0 0 0 0 0 0 0 0 0 7 7 0 7 0	0 40 19 0 0 0 0 59 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	13 0 0 33 30 84 6 166 0 0 0	33 251 189 53 30 84 6 646 10 4 17

Please note:

Establishments, which due to the character of their curriculum feel unable to complete Table 4.2 may – alternatively – provide a detailed outlay of their curriculum. This should allow conclusions to be drawn about the extent to which the requirements layed down in directive 2005/36/EC are met. The values for ratios R6, R7 and R8 (Annex I, 2.10) must be given.

Table 4.2bis: Core courses taught during each curricula year of the new curriculum

1styear

	The	oretical trair	ning	Supervised	practical tr Faculty	aining on	Other	Total
Subject	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Practical training (extramu- ral work)	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
Physics and Biophysics	16	0	0	38	0	0	0	54
Anatomy with Organogenesis of Domestic Animals II.	20	0	105	0	100	0	0	225
Anatomy with Organogenesis of Domestic Animals I.	18	0	129	0	64	0	0	211
Biochemistry in Veterinary Medicine	30	10	0	32	0	0	0	72
Botany in Veterinary Medicine	10	0	0	10	0	0	0	20
Histology with General Embriology	30	0	0	60	0	0	0	90
Medical Chemistry	20	0	0	34	0	0	0	54
Environment, Animal Behavior and Welfare	16	18	86	6	0	0	0	126
Basic Statistics in Veterinary Medicine	15	0	67	15	0	0	0	97
Animal Breeds Characteristics	15	10	113	30	0	0	5	173
Introduction to English Veterinary Medical Terminology I.	0	0	0	15	0	0	0	15
Introduction to Veterinary	0	6	0	0	0	0	14	20
Zoology	15	20	0	30	0	0	10	75
Total	205	64	500	270	164	0	29	1232

*Physical Education and Health (60 hours outside the Faculty)

2ndyear

	The	oretical traiı	ning	Supervised	practical tr Faculty	aining on	Other	Total
Subject	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Practical training (extramu- ral work)	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
Anatomy with Organogenesis of Domestic Animals II.	15	0	78	0	63	0	0	156
Phisiology of Domestic Animals I.	30	0	0	50	0	0	0	80
Phisiology of Domestic Animals II.	45	25	0	56	4	0	0	130
Hygiene and Housing of Animals	39	21	204	15	14	0	6	299
Molecular Biology and Genomics in Veterinary Medicine	15	15	0	10	0	5	0	45
Basic Animal Nutrition	15	0	0	30	0	0	0	45
General Microbiology	12	12	0	30	0	0	0	54
Applied Animal Nutrition	45	0	0	15	11	0	4	75
Introduction to English Veterinary Medical Terminology II.	0	0	0	15	0	0	0	15
Animal Breeding and Production	38	15	263	25	0	0	12	353
Veterinary Immunology	15	0	0	15	0	0	0	30
Total	269	88	545	261	92	5	22	1282

*Physical Education and Health (60 hours outside the Faculty)

3rd year

	The	oretical traiı	ning	Supervised	practical tr Faculty	aining on	Other	Total
Subject	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Practical training (extramu- ral work)	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
General Veterinary Pathology	30	0	0	0	60	0	0	90
Pharmacology	45	5	46	29	6	0	0	131
Clinical Propedeutics	45	0	0	0	0	60	0	105
Parasitology and Parasitic Diseases	30	0	0	44	4	12	0	90
Pathophysiology II.	45	0	0	50	0	0	0	95
Pathophysiology I.	15	0	0	10	0	0	0	25
Special Microbiology	15	15	0	30	0	0	0	60
Special Veterinary Pathology	60	0	0	45	30	0	0	135
Toxicology	26	5	0	23	0	0	0	54
Veterinary Epidemiology	10	0	70	20	0	0	0	100
Total	321	25	116	251	100	72	0	885

4thyear

	The	oretical trai	ning	Supervised	practical tr Faculty	aining on	Other	Total
Subject	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Practical training (extramu- ral work)	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
Internal Diseases	90	0	0	0	0	120	0	210
Biology and Pathology of Aquatic Organisms	11	0	62	10	0	11	4	98
Biology and Pathology of Beneficial Insects	13	0	66	8	0	7	8	102
Game Breeding and Management	4	0	0	6	4	8	8	30
Surgery, Orthopaedics and Ophthalmology II.	30	0	0	0	0	45	0	75
Surgery, Orthopaedics and Ophthalmology I	30	0	0	0	0	60	0	90
Methods of Physical Therapy and Diagnostics	15	0	0	0	0	15	0	30
General and Clinical Radiology	15	0	0	0	0	30	0	45
Obstetrics and Reproduction I.	60	0	0	0	0	90	15	165
Total	268	0	128	24	4	386	35	845

5 thyear

	Theoretical training			Supervised	practical tr Faculty	aining on	Other	Total
Subject	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Practical training (extramu- ral work)	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
Surgery, Orthopaedics and Ophthalmology III.	30	0	0	8	0	37	0	75
Ambulatory (Mobile) Clinics (AMC)	0	0	0	0	0	0	60	60
Food Hygiene and Technology	60	0	361	0	59	0	46	526
Obstetrics and Reproduction II	30	0	0	0	0	30	15	75
Radiation Hygiene	15	4	0	11	0	0	0	30
Veterinary Legislation and Regulatory Affairs	15	30	0	0	0	0	0	45
Infectious Diseases of Domestic Animals	75	0	0	16	0	89	0	180
Total	225	34	361	35	59	156	121	991

6thyear

	Theoretical training			Supervised	practical tr Faculty	aining on	Other	Total
Subject	Lectures	Seminars	Self- directed learning	Laboratory and desk based work	Non- clinical animal work	Clinical work	Practical training (extramu- ral work)	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
Forensic Veterinary Medicine	15	0	0	30	0	0	0	45
Poultry Diseases	25	26	157	0	0	17	7	232
Veterinary Economics	11	0	0	19	0	0	0	30
Ambulatory (Mobile) Clinics (AMC)	0	0	0	0	0	0	60	60
Clinical Field Work (CFW)	0	0	0	0	0	0	180	180
Professional Clinical Work (PCW)	0	0	0	0	0	36	84	120
Herd Health (HH)	0	0	0	0	0	0	15	15
Final graduation thesis	0	0	0	0	0	60	0	60
Total	51	26	157	49	0	113	346	742

Table 4.3: Curriculum hours in EU-listed subjects offered and to be taken as <u>electiv</u>	ves
---	-----

		The	oretical trai	ning	Supervised	practical t	raining		Hours to be
	Subject	Lectures (A)	Seminars (B)	Self directed learning (C)	Laboratory and desk based work (D)	Non- clinical animal work (E)	Clinical training (F)	Hours and number subject	taken by each student per subject group (minimum hours)
ic ts	Physics	40	20	0	0	0	0	60 (2)	
Bas bjec	Chemistry	15	9	0	6	0	0	30 (1)	60 (22.2%)
1. Su	Animal biology	51	39	0	58	20	12	180 (7)	(22,270)
	Anatomy	52	19	0	15	11	128	225 (8)	
S	Physiology	70	7	0	38	0	0	115 (5)	
cience	Biochemistry, cellular and molecular biology	0	15	0	15	0	0	30 (1)	60
sic S	Toxicology	12	0	0	9	0	0	21(1)	(12,47%)
2. Bas	Microbiology (including virology, bacteriology and mycology)	8	0	0	22	0	0	30 (1)	
	Epidemiology	52	4	0	0	4	0	60 (2)	
	Pathology	30	0	0	30	20	0	90 (3)	
	Parasitology	10	0	0	20	0	0	30 (1)	
S	Clinical medicine and sur- gery	10	0	0	20	0	0	30 (1)	
Science	Clinical lectures on various domestic animal, poultry and other animal species	45	0	0	9	15	6	75 (3)	135
ical	Preventive Medicine	0	17	0	0	15	48	80 (2)	(31,76%)
3.Clin	Diagnostic imaging (including radiology)	9	0	0	6	0	0	15 (1)	
	Reproduction and repro- ductive disorders	13	14	0	6	3	24	60 (2)	
	Veterinary legislation and forensic medicine	20	21	0	4	0	2	45 (3)	
nal tion	Animal production	87	89	0	0	0	0	279 (12)	60
Anir	Animal nutrition	27	27	0	34	0	0	88 (5)	(14,05%)
4. Pro	Agronomy	22	11	27	0	0	0	60 (2)	
lic Health	Inspection, and contro of animal foodstuffs or food- stuffs of animal origin and the repective feedstuff pro- duction	27	19	0	6	30	0	82 (3)	
e/ Pub	Food hygiene and techno- logy	12	0	0	0	14	0	26 (1)	90
lygien	Food science including legi- slation	14	4	0	0	8	0	26 (1)	(51,13%)
5. Food H	Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	19	6	0	0	17	0	42 (2)	
ssional	Veterinary certification and report writing	30	0	0	30	0	0	60 (2)	
6. Profe Know	Career planning and oppor- tunities	15	15	0	0	0	0	30 (1)	60 (25%)
Other	English for Academic pur- poses Veterinary Ethics Fundamentals of Scientific Research	23	79	0	48	0	0	150 (4)	

Besides the core courses, each semester the student is required to enroll in electives, and by that, acquire a total number of credits necessary for the completion of one semester. Electives are a mandatory part of the curriculum, which the student may choose according to the set rules. The number of electives is defined by the curriculum, as well as the subjects which may be enrolled in each semester. We presented the elective part of the curriculum in Table 4.3, and below is the basic division of elective subjects:

- 1) Type 1 electives which students take as a free choice They are common to all students, regardless of the selected study track. Students may enroll inany of the electives from the list of offered subjects in a particular semester. The list of electives is available at the beginning of each academic year on the Faculty's website and published in the Student guide. Students enroll in electives for the first time upon enrolment in the second semester. When a student enrolls in a certain elective, it is registered in ISVU system. Students' obligations towards elective subject are the same as towards obligatory subjects. Based on the number of enrolled students, a plan of execution of each elective subject has been made for each academic year. During the entire study program, students have to enroll in enough electives of Type 1, to generate at least 27 ECTS.
- **2)** Type 2 electives related to individual track. Elective subjects from the study tracks are enrolled by students of 10th and 11th semester after they have selected one of the study tracks. These electives are selected freely from the tables of electives offered for particular study tracks. They generate a minimum of 7.5 ECTS. Tables 4.4a,b,c provide information on the number of lecture and/or practical work hours for electives in the particular study track.

Group of *obligatory subjects related to individual study track* (10th and 11th semester) is shown in Tables 4.3a,b,c.

Table 4.3a: Curriculum hours in EU-listed obligatory subjects to be taken by all studentsin the study track"Small Companion Animals"

(student enrols obligatory subjects related to study track in the amount of 3.5 ECTS in 10th semester and i 10.5 ECTS in 11th semester) (student enrols electives of Type 2 in the amount of 6.5 ECTS in 10th semester and 1 ECTS in 11th semester)

Subjects	Theoretical training		Supervi	ised practical t	Other	
	Lectures+ Seminars	Self directed learning	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	Е	F
Diseases and Treatment of Dogs and Cats I	0	0	29	0	16	0
Diseases and Treatment of Dogs and Cats II	0	0	29	0	16	0
Diseases and Treatment of Pet Birds, Exotic Pets and Laboratory Animals	50+22	0	0	0	14	4

X and *XI* semester (obligatory subjects related to study track SCA)

Table 4.3b Curriculum hours in EU-listed obligatory subjects to be taken by all students in the study track "Farm Animals and Horses"

(student enrols obligatory subjects related to study track in the amount of 7 ECTS in 10th semester and 7 ECTS in 11th semester) (student enrols Type 2 electives from the study track in the amount of 3 ECTS in 10th semester and 4.5 ECTS in 11th semester)

X and XI semester	(obligatory si	ihiects related	to stud	v track FAH)

Subjects	Theoretical training		Superv	ised practical t	Other	
	Lectures+ Seminars	Self directed learning	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	E	F
Diseases and Treatment of Horses	10+25	0	0	0	0	45
Diseases and Treatment of Farm Animals	13+30	0	5	0	0	42

Table 4.3c: Curriculum hours in EU-listed obligatory subjects to be taken by all students in the study track "Veterinary Public Health"

(student enrols obligatory subjects related to study track in the amount of 7 ECTS in 10th semester and 7 ECTS in 11th semester) (student enrols Type 2 electives in the amount of 3 ECTS in 10th semester and 4.5 ECTS in 11th semester)

Subjects	Theoretical training		Supervi	raining	Other	
	Lectures+ Seminars	Self directed learning	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	E	F
Foof Hygiene and Quality Control	11+4	0	0	0	30	0
Veterinary Legislation and Food Safety Control	28+13	0	4	0	0	0
Veterinary Public Health	49+17	0	0	0	11	13

X i XI semester (obligatory subjects related to study track VPH)

The list of electives within study tracks (Type 2) with allocated hours is shown for each study track in Table 4.4a,b,c.

Table 4.4a: Curriculum hours in EU-listed subjects offered as <u>electives in the study track "Small Companion</u> <u>Animals"</u>

X i XI semester (Type 2 electives from the study track SCA)

Subjects	Theoretical training		Superv	raining	Other	
Туре 2	Lectures+ Seminars	Self directed learning	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	E	F
Citometry in Clinical Veterinary Medicine	0+15	0	8	0	7	0
Dietetics of Dogs and Cats	7+8	0	0	0	0	0
Cynology and Felinology	20	0	0	10	0	0
Clinical Anatomy	10	0	0	5	15	0
Comparative Odontology	10	0	2	0	1	2
Responsibilities in Veterinary Medicine	10+5	0	0	0	0	0
Pigeon Keeping and Breeding	0+15	30	0	15	0	0
Veterinary Laboratory Diagnostics	10	0	0	20	0	0
Selected Chapters in Aquaculture	5	0	0	13	0	12

Table 4.4b: Curriculum hours in EU-listed subjects offered as <u>electives in the study track "Farm Animals and</u> <u>Horses"</u>

X i XI semester (Type 2 electives from the study track FAH)

Subjects	Theoretical training		Supervi	raining	Other	
Type 2	Lectures+ Seminars	Self directed learning	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	E	F
Citometry in Clinical Veterinary Medicine	0+15	0	8	0	7	0
Dietetics of Farm Animals	7	8	0	8	0	0
Feed Additives - Health Modulators	15	0	0	15	0	0
Ecological Production of Poultry and Game Birds	10	10	0	8	2	0
Hormonal and Metabolic Disorders	15	0	0	15	0	0
Clinical Anatomy	10	0	0	05	15	0
Comparative Odontology	10	0	0	2	1	2

Responsibilities in Veterinary Medicine	10	5	0	0	0	0
Animal Husbandry Organisation and Economics	15+15	0	0	0	0	0
Fundamentals of Ecologic Livestock Breeding	10+5	30	0	15	0	0
Specific Anatomical Structures of the Locomotor Apparatus of the Horse	0	0	0	15	0	0
Emerging Infectious Diseases	20	0	0	0	2	0
Technological Systems of Poultry Production	6	4	0	3	2	0
The Role of Veterinarians at Organic Farms	10	5	5	0	20	0
Veterinary Practice Management and Marketing	15+15	0	0	0	0	0
Legal Procedure and Veterinary Inspection	8+7	0	0	0	0	0
Veterinary Laboratory Diagnostics	10	0	20	0	0	0
Zoonosis	24+4	0	0	2	0	0

Table 4.4c: Curriculum hours in EU-listed subjects offered as <u>electives in the study track "Veterinary Public</u> <u>Health"</u>

X i XI semester (Type 2 electives from the study track VPH)

Subjects	Theoretical training		Supervi	ised practical t	raining	Other
Type 2	Lectures+ Seminars	Self directed learning	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	Е	F
Autochthonous Meat Products	10+10	0	6	0	0	0
Autochthonous Dairy Products	6+9	0	0	15	0	0
Hygienic Guality od Game Meat	11	0	0	15	0	0
Hygiene and Quality of Poultry Meat	12	0	0	14	0	0
Carcass Quality at the Slaughter Line	14+4	0	0	8	0	0
Responsibilities in Veterinary Medicine	10	0	0	5	0	0
Emerging Infectious Diseases	28	0	0	2	0	0
Fishery	11	0	0	4	0	0
The Role of Veterinarians at Organic Farms	10	0	0	20	0	0
Legal Procedure and Veterinary Inspection	8+7	0	0	0	0	0
Hygiene and Quality of Fish Meat	8+6	0	0	12	0	0
Zoonosis	24+4	0	0	2	0	0

Table 4.4: Curriculum hours in subjects not listed in Table 4.2 to be taken by each student, including Diploma work (final graduation thesis, or final graduation work)

Subjects	Theoretical training		Supervised practical training			Other
	Lectures+ Seminars	Samoučenje	Laboratory and desk based work	Non-clinical animal work	Clinical training	obligatory extramural work
	А	В	С	D	Е	F
Graduation thesis	0	0	0	0	60	0
Physical Education and Health	0	0	0	0	0	60
Introduction to English Veterinary Medical Terminology I and II	0	0	30	0	0	0

4.1.3 FURTHER INFORMATION ON THE CURRICULUM

Provide the visiting team with highlights and any unusual or innovative aspects of the teaching program, e.g. tracking and orientation programmes.

The fundamental guideline – innovativeness of the "new" curriculum in relation the "old" one is its orientation towards practical training - intramural and extramural work, which is visible from the curriculum structure. Monitoring system of student's successfulness is described in more detail in Section 4.1.4.

Innovative aspects of the curriculum are also manifested through teaching in small exercise groups (in all subjects where possible). Beginning from the 2^{nd} semester, student spend part of their training within certain core subjects on different animals facilities (farms, "Zoo"- garden, The Veterinary Institute in Križevci, Croatian Centre for Reproduction, Nature Park "Lonjsko Polje" and educational hunting ground "*Črnovšćak*") and become familiar with handling of animals, basics principles of identification and selection of a different animal species.

The baseline for determining the strategic development and guidelines of the Faculty curriculum is the modern concept of teaching based on the learning outcomes. The study is organized in accordance with the "Bologna Declaration" and it combines different methods of interactive teaching and learning which largely includes case-study analysis, solving specific problems directly from practice, guest lecturers, use of modern teaching technology, independent research and cooperative learning.

The level of knowledge and understanding that students acquire by the study programme is sufficient for them to demonstrate professional approach to work and to independently resolve routine and more complex problems in practice. Acquirement of "Day-One skills" is achieved by providing students with relevant theoretical & practical knowledge, skills and clinical experience, together with evaluation process which determine whether the aims/learning outcomes have been met. The FVMUZ accepted the EAEVE GE suggestion from 2003, which proposed the increasing of supervised practical and clinical training.

Other aspects of curriculum are:

- All students are involved in a series of practical learning activities regardless of their study track;
- A major part of these activities (basically clinical exercises) is organized in small groups, so all students have equal opportunity to acquire necessary experience;
- Students develop their clinical skills through problem-based teaching and inclusion into clinical work, under adequate supervision;
- Clinical rotations of small groups of students are applied;
- Inclusion of core subjects AMC, HH, CFW and PCW create opportunities for a significant increase of extramural working hours. During OEW (obligatory extramural work) students visits animal farms (cattle, horses, poultry and pigs) gain experience and strengthened contacts with excellent practitioners in the field;
- Students visit slaughterhouses, food-processing plants, markets etc. and learned about important role of veterinarians in Food Safety & Public Health.

In May 2009, the Faculty signed Agreement on cooperation in e-learning with UNIZG biomedical group of faculties (Faculty of Pharmacy and Biochemistry, School of Medicine and School of Dental Medicine) with the aim of organization, promotion and coordination of e-learning. At the end of the academic year, the required software, adapted to the Faculty's program (*Moodle* system), was installed on the server computers. Furthermore, our students have been able to use the "E-portfolio" of The School of Medicine, which enables direct communication and exchange of knowledge and experience among the students of the biomedical group of faculties.

Agreement on cooperation in e-learning between The Faculty of Pharmacy and Biochemistry, School of Medicine and School of Dental Medicine and the Faculty of Veterinary Medicine was signed on 12 May, 2009.

Achievements in e-learning:

- Set up and activation of the computer system for e-learning; LMS (Learning Management System) on the Faculty's server;
- List of obligatory and elective subjects available;
- A LMS courses for professors and assistant professors have been held;
- Full data entry for 20 obligatory and 14 elective subjects;
- Partial data entry for 8 obligatory subjects ;
- LMS and ISVU are connected for bilateral usage.

The FVMUZ also develops advanced computer technologies, resulting from the application of its own ideas or methods (e.g. Computer program "VEF protocol" for monitoring the Clinics work, system for monitoring teaching and tracking students' achievements, etc.) Special attention has been paid to the use of innovative teaching methods oriented towards students.

State the parts of the program that must be attended as obligatory by the students and how the attendance is verified.

A unitary way of monitoring student activities during classes was adopted at the FC session in 2009. Subject teachers, in accordance with the adopted rules, control attendance at lectures, seminars and practical work and assign credits for student's activities, according to a unitary monitoring system for all subjects. The system for assigning credits for determined elements of the student activities is described in detail in Chapter 5, Section 5.1.3. *Regulations on integrated undergraduate and graduate study of 2008* additionally determine the verification of students' attendance to all types of teaching. Attendance to all forms of teaching is obligatory.

Attendance/Absence from all forms of teaching

The number of absences and their justification (excused absence) are regulated in Article 45 of the above mentioned *Regulations*. All forms of teaching presented in Tables 4.2 and 4.3 are obligatory and students must be present at least 50% of theoretical teaching and 70% of practical work. The only exceptions are the clinical rotations during night-shift duty and extramural work where required attendence is 100%. In the last week of semester it is possible to organize re-compensations for certain activities determined by the syllabus.

Process of verifying the students' attendance

Timetable of all types of training is put on info-boards and published in bulletin. It is also visible on the Faculty's website and on the corresponding Clinics/Departments e-page, where the schedule for specific subject is emphasized. Controls of students' attendance are rigorous, subject to keeping record and acquisition of minimal number of credits assigned to different elements during the entire period of teaching, and is an integral part of the final grade in a particular subject.

Accumulation of credits

The final grade in a particular course consists of the sum of individual credits for successfully fulfilled obligations in relation to the all types of training and credits from the final exam.

<u>Recording of all forms of teaching</u>

Since 2005, the Faculty has introduced a special method of recording the all forms of teaching, individual continuous work of each student and exams through ISVU information system. ISVU is a project at the national level. All the information on the student course of study - from enrolment in the higher education institution, through the continuous monitoring of student's work in particular subjects, number of exams taken, enrolment in senior years of study, to graduation - are recorded in a unitary software system.

Teachers are required to record the presence and activity of students on all types of teaching in order to implement this unitary system of monitoring students' attendance in particular training. The required data is entered by teachers themselves or with the help of administrative staff into the electronic or written form, depending on the subject and form of teaching.

Summary data on the earned credits for each student are entered in the ISVU computer module (for all obligatory and elective subjects) under the name "*Continuous monitoring of teaching for the XY subject*".

Monitoring the attendance and activity of students through computer software "VEF-protocol"

Besides the ISVU system for monitoring the attendance and activities of students, there is software "VEFprotocol" for recording case-load during the student practical training at the FVMUZ Clinics. It records everything from the initial "basic" patient records and writing referral slips, to more comprehensive data on the owner and the patient. It is intended for writing prescriptions, discharge letters, recording medical findings (patient dossier) in Clinics and laboratories, scheduling patient appointments & appointments for individual procedures and billing accessible to all users in any area. The latest changes were included in the programme in early 2011 and they relate to the record of student activities on Clinics during night duty. In order to monitor the work of students, the program has been updated with the possibility of entering basic information about the student and the card of the patient which student monitored while s/he was "in charge" (see Chapter 7, Section 7.1.9).

Please provide specific information on the practical clinical training; If clinical training is
provided through obligatory clinical rotations in different areas, please give an outline
description of how this is structured, in terms of:
• are such rotations a structured part of the training given to all undergraduate stu-
dents?
 the total number of days or weeks of such rotations;
• the year(s) in which they occur;
 the different areas covered and the time spent in each area;
• whether attendance is full-time, for part of the day, and/or other (e.g. based on case
needs);
 the activities and case responsibilities that students are expected to under take.
 the group sizes in the clinical rotations.

Basic information on the practical/clinical training at the FVMUZ

The Faculty organizes practical clinical training at the FVMUZ Clinics (FVMUZC) and obligatory extramural work in veterinary and other institutions. According to the new model, the Faculty has insured clinical practical work for every student, tutored by Faculty teachers and under the guidance of external professionals, during the whole study program. Emphasis is on Clinics and quality practical training through its various forms, from obligatory clinical rotations, patient demonstrations, student monitoring of patients, professional-clinical work at the FVMUZC and practical extramural work.

Due to the introduction of an increased number of hours in practical work and acquirement of "Day-One skills", the 12th semester is free of theoretical subject. In order to achieve this, the former elements of

one year of compulsory veterinary practice (see Introduction, 8. Intramural clinical work at FVMUZ and obligatory ekstramural work) have been incorporated into 6th year curriculum, as well as core subjects which are taught extramurally (CFW, PCW and HH). Conclusions on the conduct of the 6th year of study were adopted at the FC session of 26th January 2011 (*Document: Minutes from 4th regular session of the Faculty Council of 26 January, 2011*).

The Faculty has signed official collaboration agreements with various outside bodies (see Annex 1 to Chapter 5 of this SER). Practical work is carried out in various veterinary institutions (clinics, institutes, departments, etc.) and all other institutions which include veterinarians in their scope of work (farms, reproduction centres, family farms, dairies, slaughterhouses, fish farms, bee-keeping farms, agriculture, ministries, etc.) in accordance with the study programme. Each academic year, the Faculty adopts the plan of obligatory clinical rotations in different areas and determines in which veterinary organizations and institutions students will perform obligatory extramural work.

While conducting practical work, students are required to maintain *Practical Work Log* (PWL) on a standardised form. The PWL contains:

- Date, place and name of organization/institution,
- Description of daily practical work,
- Mentor's signature verified by the institution's seal.

Students are required to hand in their PWL and a Certificate on completed practical work in one *Final Report* on all aspects of extramural practical work. The report is being permanently stored in the personal file of each student (see Section 4.1.4).

Rotations as structured part of the training given to all undergraduate students:

All students are required to do an adequate number of hours planned for intramural and extramural practical/clinical training in accordance with the curriculum:

- 1 Obligatory clinical rotations in classical clinical subjects (at the FVMUZC within clinical subjects);
- 2 Obligatory clinical rotations in AMC (obligatory extramural training);
- 3 CFW (obligatory extramural training);
- 4 PCW:
- a) First module within subjects (at the FVMUZC);
- b) Second module within subjects (extramural training);
- c) Third module within subjects (extramural training);
- 5 HH (obligatory extramural training);
- 6 Clinical training included in other subjects: *General and Clinical Radiology, Poultry Diseases, Parasitology and Parasitic Diseases, Pharmacology and Toxicology* (at the Faculty).

The total number of days or weeks of such rotations and the group sizes in the clinical rotations

The number of hours provided for practical/clinical training is directly connected to certain clinical subjects in the curriculum. The list of subjects with assigned number of hours for the group of obligatory clinical subjects and subjects based solely on extramural practical work is shown in Tables 4.2 and 4.5.

In order to achieve obligatory rotations between clinical subjects and night duty linked to classical clinical subjects, the syllabus is created in coordination of all clinical subjects.

Programming exercises in all clinical subjects are conducted strictly at the FVMUZC, except for *Obstetrics and Reproduction I and II*. Part of the practical training is done on farms outside the Faculty (30 hours per student).

Acquisition of clinical skills begins in the third year of study with obligatory subject *Propedeutics* (105 hours per student). After acquiring theoretical knowledge, the curriculum of *Propedeutics* enables "first supervised obligatory clinical work" in the amount of 60 hours per student. During the execution of *Propedeutics* in 2011 practical work was conducted in 6 groups of 15 students which were then divided in 5 small subgroups, 3 to 5 students per teacher.

The acquisition of clinical skills is also continued through obligatory rotation in Clinical subjects and rotation in obligatory *AMC* is organized outside the Faculty every year. Rotations outside the Faculty are organized four clinical areas: internal medicine, surgery, obstetrics and infectious diseases.

The acquisition of skills continues in 12th semester which is free of all other forms of teaching and completely focused on acquiring practical skills through several obligatory subjects the conduct of which is also organized extramurally (*CFW*, *PCW and HH*).

Departments/clinics responsible for the conduct of clinical subjects with allocated hours for clinical/ practical work

Departments and Clinics are responsible for the organization and carrying out of obligatory clinical rotations. Obligatory subjects with allocated number of hours <u>prescribed strictly for clinical training</u> are executed by the following organizational units:

Organizational units/ subject /hours for practical/clinical work per student

- Surgery, Orthopaedics and Ophthalmology clinic / subject Surgery, orthopaedics and ophthalmology I, II and III./ 142 hours per student
- Obstetrics and Reproduction Clinic /subject Obstetrics and reproduction I and II / **150** hours per student.
- Department of Radiology, Ultrasound Diagnostics and Physical therapy / subjects General and Clinical Radiology and Methods of Physical therapy and diagnostics / **30** hours per student.
- Internal diseases clinic /subject Propedeutics / 60 hours per student and Internal diseases of domestic animals / 120 hours per student.
- Department of Microbiology and Infectious Diseases with Clinic / subject Infectious diseases of domestic animals/ **89** hours per student.
- Department of parasitology and parasitic diseases with clinic / course Parasitology and Parasitic Diseases / 12 hours per student.
- Department of poultry diseases with clinic / subject Poultry Diseases / 17 hours per student.

In addition to the above subjects with the teaching hours intended strictly for clinical work, we would like to point out subjects from Table 4.2 which are taught extramurally, and hours of which are strictly linked to practical training as follow:

Organizer: Faculty//hours for practical/clinical work per student

- AMC / 120 hours per student.
- CFW / 180 hours per student.
- PCW / 120 hours per student.
- HH / 15 hours per student.

The above mentioned Departments/Clinics and their staff members are involved in the daily operation and permanent emergency services at the FVMUZC. The FVMUZC are open throughout the whole year (52 weeks) for public services. All FVMUZC are open for emergency cases 24-hour a day throughout the week. Students are directly involved in FVMUZC work throughout the academic year, according to the study programme. Volunteer work and practical training are offered to students for the rest of the year (summer holidays) as agreed with the Heads of FVMUZC.

The activities and case responsibilities that students are expected to undertake

Students who attend the practical training of the IUGUSVM programme are allowed to undertake all interventions under Faculty teachers and the guidance of external professionals, appointed by the FC. Students start acquiring skills by practicing on animals during anatomic teaching, through models all the way to patients, gradually progressing to the most complex procedures in the fifth and the sixth year of study (according to Catalogue of skills: to acquire **M**inimal **P**ractical **C**ompetencies (MPC), see below in this Chapter). During obligatory clinical work, under the supervision of the teacher, students examine patients, actively participate in diagnosing and assist with treatment plans. They further improve modern methods and techniques in surgery, obstetrics, radiology and ultrasound diagnostics. During the day and after-hours at the FVMUZC they are faced with broad and diverse practice.

Teachers demonstrate all the skills in the Labs and FVMUZC and then students individually practice these skills with clinical exercises coordinators. If the coordinator determines that the student has overmastered the skills prescribed by the program, s/he shall verify with his/her signature each of the acquired skills in the student's records. The order in the program of clinical training, presentation and practice of skills are clearly defined in the syllabus of each clinical subject.

In extramural clinical work on farms and in subject *AMC*, students are introduced to specific problems and with the presence of teachers and veterinary practitioners of approved veterinary organizations, they apply acquired knowledge and skills in particular training. Veterinary practitioners prepare and select patients which are of interest to the subject *AMC* and training of students.

A detailed overview of tracking, evaluation and recording of acquired skills and knowledge for each individual aspect of clinical/practical work is shown below under 4.1.4.

DETAILED OVERVIEW OF THE ORGANIZATION OF CLINICAL/PRACTICAL WORK

- Year in which practical/clinical training is conducted;
- Areas covered by practical/clinical training;
- Time spent in each area;
- Group size, etc.

1 Obligatory rotations in clinical subjects (at the FVMUZC)

Students of the 4th year of study participate in clinical rotations. After they have acquired their first clinical experiences and skills in the 3rd year by taking the subject *Propedeutics*, they rotate between three classical clinical subjects *Surgery, Orthopaedics and Ophthalmology I, II* and *III* (142 hours per student), *Obstetrics and Reproduction I* and *II* (150 hours per student) and *Internal Diseases of Domestic Animals* (120 hours per students). Clinical rotations within these classical clinical subjects continue in the fifth year of study. The number of hours allocated to the obligatory clinical training in these subjects is 412. Rotations are conducted in the following manner: first, students are divided alphabetically into groups of up to 15 students and later they are divided within clinics and clinical subjects into smaller subgroups of 3-5 students.

After they have been assigned to the clinics according to a well-defined schedule and upon the completion of a clinical exercise, they rotate between clinics. Students are led by mentors, one mentor per 3-5 students. During the scheduled clinical training and night duty, students participate in all forms of the clinical work under the supervision of the mentor. As a result of this, small groups of students are taught during the day-long rotations at the FVMUZC. Clinical rotations are held every working day of the week, during 7th, 8th, and 9th semester between 8 a.m. and 6 p.m.

<u>Night duty</u> is a new form of obligatory clinical teaching, organized within the timetable of classical clinical subjects. For the first time in academic year 2011/12 night duty was organized for all students who enrolled 8th semester (15 hours per students). Night duty for 8th semester students is organized simultaneously with the conduct of night duty for 12th semester students, who attend obligatory subject *PCW*.

As a result of this, three students are on night duty at the same time, one from the 8th semester and two from the 12th semester.

2 Obligatory rotations in subject AMC (extramural)

Ambulatory (mobile) clinic (AMC) is a teaching unit with a specific type of field training in the area of internal diseases, infectious diseases, surgery, orthopedics, ophthalmology and obstetrics in veterinary practice. Due to operational-organizational reasons and a more successful achievement of learning objectives, fieldwork of four clinical subjects is connected. AMC is an obligatory subject (120 hours per student) and it is conducted extramurally in contracted veterinary organisations and institutions, evaluated by 9.5 ECTS. For the purposes of the extramural work, the Faculty has at its disposal two buses for up to 28 students each, and one smaller bus. AMC is organized and performed in the fifth and sixth year of study. In the weeks scheduled for extramural work, students go out every day (Monday to Thursday) from 8 a.m. until 2 p.m. Hours spent on the journey to the practical work site are not included in the teaching hours. Four teachers covering internal medicine, infectious diseases, surgery and obstetrics are going to the field with 12 to 14 students, who are divided into smaller groups of 3 to 4 students per teacher. Training in particular clinical subjects is conducted in small teaching groups leaded by clinical teacher. The number of students may vary (be bigger or smaller) depending on the nature of fieldwork and fieldwork requirements. Students work under a maximum supervision of the Faculty teacher, from the first contact with the animal's owner, taking of anamnesis, clinical examination and making diagnosis, to suggestions for treatment. What follows is the discussion and administering of therapy (it can be a drug therapy or a radical surgical therapy), again under the supervision of the teacher. In this way, students are able to practice veterinary procedures in the field conditions and get an insight into patient pathology which they can rarely deal with at the FVMUZC. Methods of evaluating the students' work for this type of training are shown in this Chapter, Section 4.1.4. (additional information about AMC are presented in Chapter 7, under 7.1.8.1 Ambulatory (Mobile) Clinic). All veterinary organizations are close to Zagreb (within 70 km). As an example we would like to shown 10th semester in which students performed the described type of training in 36 outgoings from 5th March to 17th May, in academic year 2011/12. This type of training with allocated hours is shown in Tables 4.1, 4.2, 4.2bis and Table 4.5.

Table: The list of thirteen (13) veterinary organizations in which practical fieldwork in subject <u>AMC</u> was conducted for 10th and 11th semester students in academic year 2011/12.

- VETERINARY AMBULATORY CLINIC 'JASTREBARSKO' d.o.o.Trešnjevka 61, 10450 Jastrebarsko, Croatia ,Reg.no : 3115780, OIB (Personal Identification Number): 56834479467,tel: 01/6281085, fax: 01/6283579 e- mail: info@vsj.hr, web: www.vsj.hr
 VETERINARY AMBULATORY CLINIC 'PISAROVINA' Pisarovina bb, Pisarovina, Croatia, OIB: 56834479467, tel. 01 / 6291 – 810
- VETERINARY AMBULATORY CLINIC 'PISAROVINA' PISArovina bb, Pisarovina, Croatia, OB: 56834479467, tel. 0176291 810 e-mail: ambulanta-pisarovina@vsj.hr
- 3. VETERINARY AMBULATORY CLINIC 'VETMED' d.o.o. Stružec 59, Popovača, Croatia, tel: 044/643-700
- 4. VETERINARY AMBULATORY CLINIC 'MAJCAN' d.o.o. Frane Krste Frankopana 38, Bjelovar, Croatia, Reg.no.: 0952915, MBS: 010030804, OIB: 56492483135 tel: 044/643-700; 043-228-100
- 5. VETERINARY AMBULATORY CLINIC 'BJELOVAR' d.o.o. ROVIŠĆE S. Radića 11, 43212 Rovišće, Croatia, Reg.no.: 03308286, OIB: 72949408555, tel. 043 / 878012
- 6. VETERINARY AMBULATORY CLINIC 'NOVA' d.o.o. Josipa Badalića 24, 10314 Križ, Croatia, tel. 01 / 2824513
- 7. VETERINARY AMBULATORY CLINIC 'VRBOVEC' d.o.o. LONJICA Lonjica 110, 10341 Lonjica, Croatia, Reg.no: 3101002, OIB: 43025336094, fax: 01/2791432, tel. (01) 2724-350
- 8. VETERINARY AMBULATORY CLINIC 'VRBOVEC' d.o.o. GRADEC Gradec 95 10345 Gradec, Croatia, Reg.no: 3101002, OIB: 43025336094, fax: 01/2791432, tel. (01) 2797-033
- 9. VETERINARY AMBULATORY CLINIC 'VRBOVEC' d.o.o. RAKOVEC Rakovec 52,10347 Rakovec, Croatia, Reg.no.: 3101002, OIB: 43025336094, fax: 01/2791432, tel. (01) 2798-040
- 10. VETERINARY AMBULATORY CLINIC 'VRBOVEČKA DUBRAVA' d.o.o. Kalnička BB, 10342 Dubrava Croatia,tel: (01) 2725-133
- 11. VETERINARY AMBULATORY CLINIC 'ČAZMA' d.o.o. Milana Novačića 44, 43240 Čazma, Croatia, Reg.no: 3031039, OIB: 15084493757, tel: 043/771081, fax: 043/771081 e-mail: veterinarska.stanica.cazma@bj.htnet.hr
- 12. VETERINARY AMBULATORY CLINIC 'OZALJ' d.o.o. Odvojak karlovačke ceste 110, 47280 Ozalj, Croatia, Reg.no.: 020010171, OIB: 82431984039, tel: 047/731-142, 047/638-317; e-mail: veterinarska.stanica.ozalj@ka.t-com.hr
- 13. VETERINARY AMBULATORY CLINIC 'KARLOVAC' d.o.o. Karlovac, Braće Gojak 52, Croatia, Reg.no.: 3122352, MBS: 020018730, OIB: 29441204880, tel: 047/615-401

For academic year 2012/13, the Faculty has secured a contract with a pig farm which will be included in the course curriculum of *AMC*. Until 2012 on the majority of farms the number of pigs have been reduced (according to CSF Control Regulation) and attendance of student was restricted.

Swine production: Dubravica d.d. (pig farm) Pavla Stoosa 109, 10 293 Dubravica, Reg.no: 03231631, OIB: 15249394041

3 Obligatory subject: CFW (extramural)

CFW is obligatory, integral part of the curriculum. It is conducted and organized in the final year of study in the last (summer) 12th semester. *CFW* is an obligatory subject with extramural, practical form of training. It is worth 10 ECTS with 180 teaching hours per student. Practical training is conducted individually, external professional(s) appointed by the FC, is assigned to one student. The conduct of this obligatory subject is carried out in accordance with the *Handbook for Extramural Training*.

Veterinary institutions entrusted with practical training must meet all the personnel, physical and technical requirements and be located nearest to the student's place of residence. The number of selected veterinary institutions in one academic year is determined by the total number of students and the adequacy of the organization for such type of training. Every academic year, the FC appoints external professionals from veterinary organizations and from the Faculty, who participate in the implementation of obligatory practical training.

The Faculty also organizes training courses for external professionals, who help in the execution of obligatory practical work. External professionals or most of them, are proposed by the Head of the veterinary organization (according to certain criteria). The facility that meets the required criteria for implementation of obligatory practical work is determined by the **C**roatian **V**eterinary **C**hamber (CVC). However, we must point out that most of the students perform CFW in their place of living. In organizational terms, this requires a lot of involvement from the FVMUZ and CVC, especially with finding veterinary organization for each student in his/her place of living.

Vice-Dean for education, also the coordinator of *CFW* is responsible for introducing students to the curriculum of CFW. Students may also participate in the organization of *CFW*. Students exercise their rights and obligations in the organization of *CFW* in direct communication with Vice-Dean for education. Each student may suggest an organization in which s/he would like to perform practical work, the final decision of which is made by the practical work coordinator, Vice-Dean for education, after consultation with CVC.

Prior to the commencement of practical work, students become familiar with the rules and safety measures at work which are implemented in contracted veterinary organizations. Introducing students to rules and safety measure in veterinary organizations is an obligation of the facility in which practical work is to be conducted.

FACULTY BODIES AND PERSONS RESPONSIBLE FOR ORGANIZATION OF CFW

The following bodies and persons are in charge of organization and conduct of *CFW*:

- Faculty Council (FC),
- Clinics Division Council (CDC),
- Heads of Clinics (HC),
- Vice-Dean for Education (coordinator) (VDE),
- Chair of the Clinics Division (head) (CCD).
- The coordinator and the Head of CFW constitute the operational body in charge of organization, execution and supervision of implementation of CFW.
- Organization and execution of practical work, as well as the supervision over its realization are performed by the HD and the Dean. CDC and the FVMUZC are just professional and advisory bodies, which prepare materials and suggestions for the FC in relation to the execution of CFW, take necessary measures and make necessary recommendations to the FC in order to address problems relating to CFW.

- The FC approves recommendations of the CDC.
- VDE duties are:
 - To monitor the realization of CFW curriculum by the teaching staff in charge of practical work;
 - To make a list of legal entities intended for practical work;
 - To prepare materials and recommendations in relation to the execution of CFW for the FC;
 - To develop practical work plan for the next year;
 - To propose conclusions of cooperation agreements with legal entities;
 - To keep records on completed practical work of students;
 - To compile annual report on completed practical work and submit it to the Dean.
- Duties of a contracted institution outside the Faculty:
 - To ensure all necessary conditions for the acquisition of prescribed competencies;
 - Ensure and implement safety measures during the conduct of practical work;
 - To keep records of practical work attendance;
 - To allow the expert mentor in charge, direct inspection of documentation in order to monitor the execution and quality of practical clinical work/exercises;
 - To fulfill other obligations stipulated in the agreement on practical work;
 - A contracted institution may only ask the student to perform those jobs which ensure the acquisition of competencies in accordance with the curriculum and agreement on the execution of practical work.
- Student duties in obligatory extramural practical work:
 - Regular attendance of obligatory extramural practical work/exercises and other obligatory forms of education;
 - Regular fulfillment of all curricular and contractual obligations;
 - Conduct according to the institution and the Faculty's instructions with regard to the performance of practical work/exercises;
 - Conduct in compliance with regulations on work safety;
 - Safeguarding the assets and trade secret of the employer.

The Faculty maintains records on each student with regard to extramural practical work or exercises. The record must contain all data on the institution in which the student is doing practical work or exercises as well as the level of completion of this part of the curriculum. Content and form of the records are brought by the FC.

Below, you will find the list and pictorial representation of veterinary organizations in Croatia (indicated with red dots) in which extramural practical work in relation to the subject *CFW* is done.

List of veterinary organizations in which CFW is conducted (180 hours per student for 30 days, 6 hours per student)

- 1. VETERINARY AMBULATORY CLINIC 'VARAŽDIN' d.o.o. Trg Ivana Perkovca 24, Varaždin, Hrvatska, Reg.no.: 3015254, OIB: 41540201755, tel: 042/240122, fax: 042/240461
- 2. VETERINARY AMBULATORY CLINIC 'REMETINEC' d.o.o. Brezovica, 10257, Brezovička cesta 105, Hrvatska, Reg.no: 3215385, MBS: 080094574, OIB: 95784618674, tel: 01/6538381 e-mail: vet-s-remetinec@zg.htnet.hr
- 3. VETERINARY AMBULATORY CLINIC 'IVANEC' d.o.o. Varaždinska 15; 42240 Ivanec, Hrvatska, Reg.no: 3125378; OIB: 13839398830, tel: 042 / 781323. Fax: 042 / 782011. e-mail: veterinarska.stanica.ivanec@vz.htnet.hr
- 4. VETERINARY AMBULATORY CLINIC 'SAMOBOR' d.o.o. Samobor 10430, Katarine Zrinske 7, Hrvatska, Reg. no.: 3102807, OIB: 22260583175, tel: 01/3360171 e-mail: veterinarska-stanica-samobor@zg.htnet.hr
- 5. VETERINARY AMBULATORY CLINIC 'SESVETE' d.o.o. Sesvete, 10360, Jelkovečka 2, Hrvatska, Reg.no.: 3342484, OIB: 85969503819, tel: 01/2006000, fax: 01/2006000 e-mail: veterinarska-stanica-sesvete@zg.htnet.hr
- 6. VETERINARY AMBULATORY CLINIC 'BELI MANASTIR' d.o.o. Beli Manastir, 31300, Osječka ulica 128, Hrvatska, Reg.no.: 3307352 , OIB: 74879732075, tel: 031/700133, fax: 031/703165
- 7. VETERINARY AMBULATORY CLINIC 'ZOO-VET' d.o.o. Vanje Radauša 1, 23000 Zadar, Hrvatska, Reg.no.:1593854, OIB:99458940655, tel/fax: 023 / 214295; e-mail: nzilic@globalnet.hr

- 8. VETERINARY AMBULATORY CLINIC "VIROVITICA" d.o.o. Virovitica, 33000, J.J.Strossmayera 38, Hrvatska, Reg.no.: 3104486, OIB: 46027284068 , tel: 033/728332, fax: 033/728335; e-mail: veterinarska-stanica@vt.htnet.hr
- 9. VETERINARY AMBULATORY CLINIC 'BENKOVAC' d.o.o. Rivine 1, 23420 Benkovac, Hrvatska, Reg.no: 3023613, OIB:14220332177, mob:098 / 815387, tel: 023 / 681171, fax: 023 / 684018; e-mail: veterinarska.stanica.d.d.benkovac@zd.t-com.hr
- 10. VETERINARY AMBULATORY CLINIC 'ŽUPANJA' d.o.o. Veliki Kraj 18, 32270 Županja, Hrvatska, MBS: 030037217, OIB: 99737558645, tel: 032/837659, fax: 032/837659
- 11. VETERINARY AMBULATORY CLINIC 'OSIJEK' d.o.o. Osijek, 31000, Vinovačka bb., Hrvatska, Reg.no.: 3025764, OIB: 83957020339, tel: 031/275060, fax: 031/275080
- 12. VETERINARY AMBULATORY CLINIC 'OGULIN' d.o.o. OGULIN, 47300, PEŠĆENICA 8, Hrvatska, Reg.no: 3200256, OIB: 64200496840 , tel: 047/522681, fax: 047/531973
- 13. VETERINARY AMBULATORY CLINIC 'ARGUS" d.o.o. Slavonski Brod, 35000 dr. Mile Budaka 1, Hrvatska, Reg.no.: 1315463, OIB: 49394524178, tel: 035/448842, fax: 035/448845; e-mail: argus@sb.t-com.hr, web: www.argus-sb.com
- 14. KARAULA VETERINARY AMBULATORY CLINIC d.o.o. Daruvar, 43500 Štefanovića Pere 6, Hrvatska, Reg.no: 1413830, OIB: 87844605857, tel: 043/331081
- 15. VETERINAR d.o.o. 'PULA' Krševanova Stancija 2, Hr 52100 Pula, Hrvatska, MBS: 040088106, OIB: 99705846523, tel: 052/540391
- 16. VETERINARY AMBULATORY CLINIC "RIJEKA" d.o.o. Rijeka, 51000, Stube Marka Remsa 1, Hrvatska, Reg.no.: 3320278, OIB: 02918144179, tel: 051/345033, fax: 051/345038 e-mail: vet.st.ri@ri.htnet.hr
- 17. VETERINARY AMBULATORY CLINIC 'ZLATAR-BISTRICA' d.o.o. Zlatar Bistrica, 49247 Varaždinska 2, Reg.no.:3126714, OIB: 55377057545 tel: 049/461821, fax: 049/461821;e-mail: veterinarska.stanica@kr.htnet.hr
- 18. VETERINARY AMBULATORY CLINIC 'ZAPREŠIĆ' D.O.O. B.J.Jelačića 77, 10 290 Zaprešić, Tel.: 01/3310-733, fax:01/3310-466; e-mail: vet.st@zg.t-com.hr ; Direktor: dr.sc. Vinko Medvid, dr.med.vet. Reg.no.: 3216624,OIB: 80205892543
- 19. VETERINARY AMBULATORY CLINIC 'BJELOVAR' D.O.O. Slavonska cesta 4, 43 000 Bjelovar, Tel.: 043/ 241-017, fax: 043/ 242-332 e-mail: veterinarska.stanica.bjel@bj.t-com.hr Direktor:mr. Ivan Đureković, dr.med.vet. Reg.no: 3308286, OIB: 72949408555
- 20. BIOINSTITUT D.O.O. R. Steinera 7, 40 000 Čakovec , Tel. :040/391-480, fax:040/391-488, e-mail: vet.amb.ck@veterinarskacakovec.hr ; sasa.legen@bioinstitut.hr Direktor: dr.sc.Saša Legen, dr.med.vet. Reg.no.: 3108589,OIB: 42588898414
- 21. VETERINARY AMBULATORY CLINIC, 'DRNIŠ' Brune Bušića 16, 22 320 Drniš, Tel.: 022/886-180, fax:022/886-180 e-mail: vs.drnis@gmail.com Direktor: Joško Stojanović, Reg.no.: 3031721, OIB: 31167380762
- 22. VETERINARY AMBULATORY CLINIC 'VET PLUS' D.O.O. Radićeva 81 B, 47 250 Duga Resa, Tel/fax: 047/ 849-020, e-mail: veterinarska.ambulanta.vet.plus@ka.t-com.hr Direktorica: Vlasta Antunac, dr.med.vet. Reg.no.: 1544314, OIB: 83390366615
- 23. VETERINARY AMBULATORY CLINIC D.O.O., 'DUGA RESA' Šetalište Tušmer 17, 47 250 Duga Resa, Tel.: 047/849-360, fax: 047/849-360, e-mail: veter@globalnet.hr Direktor: Miroslav Juriček, Reg.no.: 3072118,OIB: 67831760984
- 24. VETERINARY AMBULATORY CLINIC 'ĐURĐEVAC' D.O.O. Malinov trg 7, 48 350 Đurđevac, Tel.: 048/ 813-313, fax : 048/ 812-448, e-mail: ivan.forgac@kc.tel.hr Direktor: Ivan Forgač, dr.med.vet., Reg.no.: 3066142,OIB: 68118484726
- 25. VETERINARY AMBULATORY CLINIC 'IMOTA' D.D. 21 260 Imotski, Tel.:, fax: Direktor:,dr.med.vet. MB: OIB:
- 26. ZAGREB VETERINARY AMBULATORY CLINIC D.O.O. Heinzelova 68, 10 000 Zagreb, Tel.: 01/6040-149, fax:01/6040-149, e-mail: info@vs-grada-zagreba.hr Reg.no.: 3218864, OIB: 86813677256
- 27. VETERINARY AMBULATORY CLINIC 'KOPRIVNICA' D.O.O. Mihovila Pavleka Miškine 66, 48 000 Koprivnica, Tel.: 048/621-114, fax: 048/621-800, e-mail: veterinarska-stanica@kc.t-com.hr Direktor: Danimir Kolman, Reg.no.: 3037827,OIB: 35631964454
- 28. VETERINARY AMBULATORY CLINIC 'KRIŽEVCI' D.O.O. Potočka 35, 48 260Križevci, Tel.:048/718-692, fax:048/718-692, e-mail: veterinarska.stanica.krizevci.d.o.o.@kc.t-com.hr Direktor: dr.Roko Bašić, dr.med.vet. Reg.no.: 3003159,OIB: 43648705239
- 29. VETERINARY AMBULATORY CLINIC 'NAŠICE' D.O.O. Braće Radić 78, 31 500 Našice, Tel.: 031/ 613-165, fax: 031/ 613-165, e-mail: veterinarska_stanica@os.htnet.hr Direktor: Darko Damjanović, dr.med.vet. Reg.no.: 3120295,OIB: 33959344626
- 30. VETERINARY AMBULATORY CLINIC 'PAKRAC' D.O.O.Ulica Križnog puta 8, 34 550 Pakrac, Tel.: 034/411-019, fax: 034/412-889, e-mail: vet.st.pk@po.t-com.hr Direktor: Siniša Horvat, dr.med.vet. Reg.no: 03049809,OIB: 51405411763
- 31. VETERINARY AMBULATORY CLINIC 'VELIKA GORICA' D.O.O. Sisačka bb, 10 410 Velika Gorica, Tel.: 01/6221-263, fax:01/6221-070, e-mail: vs-v.gorica@zg.htnet.hr Direktor: mr.sc. Vladimir Žirović, dr.med.vet. Reg. no.: 3216063 , OIB: 00782076239
- 32. VETERINARY AMBULATORY CLINIC 'VET-CENTAR' D.O.O. Stancija Pontun 2, 52 440 Vrvari, Poreč, Tel.: 052/433-221, fax: 052/434-560, e-mail: vetcentar.porec@gmail.com Direktor: Adrijan Matić, dr.med.vet. Reg.no.: 2583739,OIB: 40847262218
- 33. VETERINARY AMBULATORY CLINIC D.O.O, 'POŽEGA' E. Podaupskog 4, 34 000 Požega, Tel.:034/211-602, 034/211-612, fax: 034/211-624, e-mail: veterinarska.stanica.pozega@po.t-com.hr Direktor: Ivan Devčić, dr.med.vet. Reg.no: 3320073.OIB: 89312164882
- 34. VETERINARY AMBULATORY CLINIC 'RAB' (VET-ARBA D.O.O) Supetarska Draga 10, 51 280 Rab, Tel.:051/776-223, fax: 051/776-307, e-mail: vet-arba@ri.t-com.hr Direktor: Vedran Rak, dr.med.vet. Reg.no.: 2577607, OIB: 42219408316
- 35. VETERINARY AMBULATORY CLINIC 'SAMOBOR' D.O.O. Katarine Zrinske 7, 10 430 Samobor, Tel.: 01/ 33 63 315, fax: 01/ 33 27 350, e-mail: veterina@veterina-samobor.hr Direktor: Tomislav Skendrović, Reg.no.: 3102807, OIB: 22260583175
- 36. LIKOMED VETERINA D.O.O. Brnaze 172, 21 230 Sinj, tel/fax: 021/ 701 400, vesna@likomed.hr; veterinarska.stanica.virovitica@vt.t-com.hr Direktorica: mr. Vesna Boban, dr. med.vet. Reg.no.: 1702408,OIB: 28686451518,
- 37. VETERINARY AMBULATORY CLINIC 'ZOO-VET' D.O.O. Biogradska 65, 23 000 Zadar, Tel.: 023/ 214-295, fax: 023/ 224-124, e-mail: zoo-vet@net.hr Direktor: mr. sc. Neven Žilić, dr.med.vet. Reg.no.: 1593854, OIB: 99458940655

Picture: Red dots indicate cities and towns in Croatia where students did their extramural practical training in subjects: AMC and CFW in academic year 2011/12.



<u>3 Obligatory subject: PCW</u> (extramural)

PCW is organized and carried out in the final year of study in the last 12th semester. It is organized as extramural practical clinical and non-clinical training within several days, with the total of 120 hours per student and 10 ECTS earned. It can be performed in and out of the Faculty. Students are involved in three different aspects of clinical fieldwork, which are different with respect to the place of conduct and duration. All students perform practical training within the subject at the Faculty's clinics first, and they are then divided in two groups, of which one is trained in the **M**inistry of **A**griculture (MA), and other in **C**roatian **V**eterinary **I**nstitute (HVI). Within these organizations, students are further divided into smaller subgroups. Upon the completion of the program, groups rotate and thereby switch organizations. As previously stated, students perform practical work in the amount of 120 hours divided into three different forms of training:

- a) As clinical training which includes rotations at the FVMUZC during night duty, 36 hours per student/2 students per group, for 2 working days/nights;
- b) As clinical training in the HVI, 64 hours per student/4 students per group, for 8 working days;
- c) As clinical training in the MA, in the duration of 20 hours per student/4 students per group, during 5 working days;

Here is a detailed description of organization of *PCW* through three different forms of training, 120 hours per student in the 12th semester:

a) First form of training within PCW

In the first part of the subject students undergo rotations at the FVMUZC, so that within the subject, each student spends 36 hours on night duty. Students are led by mentors, one mentor assigned per one to two students. Students are allocated to different clinics on duty. This means that one person can mentor more students during the year. Mentors' duty is to enable students to follow their work and participate in it.

Work at clinics begins with day duty, starting at 4 p.m. and lasts until 8 a.m. of the next day as night duty. In 2001/2012, 57 students of the 12th semester were involved in night duty in clinical rotations. Students were involved in night duty according to the schedule, in two night duties (from 5th March to 12th March 2012). They are stationed in a specially designated area for this purpose in central room for doctors on duty. Students' mentor is a teacher on night duty who fills in the "VEF-protocol" form on student's attendance, as well as the daily protocol form, which is an integral part of the *Report on completed clinical fieldwork* for each student separately.

It can be concluded from the above that each student spends 51 hours on night duty at the Faculty's clinics during the study. Also, some students may have additional night duty before the start of *CFW*. This is made possible during practical work in veterinary organizations.

After the completion of night duty, 12th semester students perform another form of training within *PCW*: *b)* Second form of training within *PCW*

The second part of *PCW* (64 hours per student/4 students per group during 8 working days) is conducted at the HVI. The training is performed on the basis of agreement on regulation and ensuring of more favourable conditions for the conduct of training in the area of veterinary medicine.

Training is conducted according to the curriculum which is updated each academic year. The training is performed by CVI's employees in educational-scientific titles (professor and assistant professor). *c) Third form of training within PCW*

The third part of *PCW* is conducted on the MA premises (20 hours per student/4 students per group during 5 working days. The training is performed on the basis of agreement on regulation and ensuring of more favourable conditions for the conduct of training in the area of veterinary medicine. Training is conducted according to the curriculum which is updated each academic year. It is performed by the Ministry's employees (experts in different areas of veterinary medicine approved by the FC decision). Evaluation of students' work equals that described in section on subject *CFW* (details in Chapter 4 under 4.1.4)

Veterinary institutions for the conduct of second and third part of PCW course:

Croatian Veterinary Institute, Zagreb, Address: Savska cesta 143, 10000 Zagreb, OIB: 29059177553, Reg. no.: 3274098, tel.: 01 / 6123666, fax: 01 / 6190841,E-mail:ured@veinst.hr; WWW:www.veinst.hr(Document: class 402-08/11-357/1) Ministry of Agriculture, The Republic of Croatia, Veterinary Directorate of the Republic of Croatia, Address: Ul. Planinska 2, 10000 ZagrebOIB: 76767369197, Mb: 3271005, tel.: 01/6106111, fax: 01 / 6109201E-mail: morana.begac@mps.hr; www.mps. hr (Dokument: klasa 251-61/01/139-12-4)

4 Obligatory subject: HH (extramural)

Within the obligatory subject HH in 6th year of study, students are directly involved in practical work with large animals on Cattle farms. HH is organized every year and it is obligatory for all students of 6th year of study. The improvement of knowledge on farms is the task of all veterinary professionals, which means that teachers from many departments and clinics of the faculty are included in it and they are responsible for theoretical and practical training of students together with vet practitioners on the farms. Training is organized on contracted farms (15 hours per student, 15 students per group with three teachers from different areas of veterinary profession). Three fieldtrips in the duration of 5 hours, in the value of 1 ECTS are organized for each student. Students become familiar with the basic principles of herd health, basic epidemiological principles, basic cause-and-effect relationship of the most important farm diseases, understanding the advantages and disadvantages of the environmental and housing factors on herd health, learning the basic principle of nutrition, understanding of the basic principle of reproduction with emphasis on veterinary and technical procedures, equipment and handling of animals, adoption of proper milking procedures, development and improvement of new milking protocols, recognition of metabolic disorders and veterinary procedures relating to them, recognition of lameness in cattle and veterinary procedures relating to it, knowledge of procedures on the breakout of infectious diseases on the farm, learning the specificities of herd health of other farm animals (pigs, sheep and goats).

MAIN TASKS EXPECTED FROM STUDENTS

Main activities and tasks expected from students and to which they are subjected during rotations at the Faculty's clinics within classical clinical subjects as well as for the duration of obligatory subjects *CFW* and *PCW* are listed as '**M**inimal **P**ractical **C**ompetencies (MPC)' in the *Handbook for extramural training for*

students and expert mentors and in specially designed printed materials, published on FVMUZ web site (see. http://www.vef.unizg.hr/nastava/izvanfakultetska/.)

The list of 'MPC'

The following list of 'MPC' was defined through the Committee for integrated undergraduate and graduate study and was officially accepted by the FC in 2001:

Practical part:

1) General veterinary medicine

Most examinations and procedures are performed within clinical subjects (Infectious Diseases; Internal Diseases, Surgery, Orthopaedics and Ophthalmology; Obstetrics).

- 1.1 Post-mortem examination, collecting materials for pathohistological and bacteriological examination;
- 1.2 Knowledge, preservation and storage of drugs;
- 1.3 Knowledge of instruments, handling and sterilization.

2) Internal Diseases

Diagnostics and treatment of patients with internal diseases

- 2.1 General clinical examination;
 - Information on the owner and description of animal
 - History
 - Status praesens (habitus, trias, visible mucous membranes, lymph nodes)
 - 2.2 Skin examination;
 - Inspection, palpation, smell, skin laboratory test, general symptomathology and skin diseases therapy, ear lobe and ear canal examination
- 2.3 Clinical examination of respiratory system (nose, larynx, trachea, provoking cough, inspection, palpation, percussion and auscultation, checking horse's working ability
- 2.4 Clinical examination of heart and cardiovascular system;
 - Examination of peripheral arteries pulse, examination of peripheral veins
 - Inspection, palpation, percussion and heart auscultation
 - Basics of ECG
- 2.5 Examination of blood and blood-forming organs
 - Taking blood samples
 - Hemogram
 - Biochemical tests and their diagnostic significance (metabolites and substrates urea, creatinine, glucose, bilirubin, total protein), enzymes (ALT, AST, SDH, CK, GLDH, GGT, ALP, LDH, alpha amylase), macro elements and micro elements (Ca, P, Fe, Cu)
 - Bone marrow, spleen and lymph node aspiration
- 2.6 Clinical examination of digestive organs;
 - appetite and food intake
 - examination of mouth, pharynx and esophagus, probing
 - examination of abdomen by inspection, palpation, percussion and auscultation
 - puncture of the abdomen
 - liver examination
 - rectal examination, defecation and excrement examination
 - clinical examination of fore stomach and abomasum (rumen and rumen content inspection and tests on foreign body in reticulum, inspection of abomasum and omasum, endometaloscopy & examination on forign-body)
- 2.7 Clinical examination of urinary organs;
 - urination

- catheterization
- urinalysis (physical, microscopic, chemical)
- determination of the functional ability of kidneys
- 2.8 Clinical examination of the central nervous system;
 - animal's mental condition
 - Inspection of skull and spine
 - Sensibility and motility
 - Reflexes (nerves and muscles)
- 2.9 Administration of drugs
 - oral, large and small animals
 - parenteral (injections I.V., intramuscular, subcutaneous, IP, infusion)

3) Infectious, parasitic and invasive diseases

- Student participates in obtaining samples for microbiological testing
- Takes blood for serological testing
- *Performs allergy tests (tuberculin tests)*
- Prepares microscopic preparations for diagnosis of infectious diseases
- Obtains samples for parasitological tests
- Prepares preparations for diagnosis of parasitic diseases
- Participates in dissection of carcasses and obtains samples for examination
- Participates in vaccination of large and small domestic animals with marking
- Participates in vaccination of cats and dogs
- Implements eradication of helminths of domestic animals
- Implements eradication of ectoparasites of domestic animals
- Participates in treatment of infected animals
- Participates in treatment of animals with parasitic or invasive diseases
- Becomes acquainted with keeping records on development of parasitic and infectious diseases
- If necessary, participates in the implementation of measures to prevent the occurrence and spreading of infectious diseases
- Present at implementation of zoo-hygienic and zoo-technical measures
- Participates in the implementation of disinfection, fumigation and pest control (25 facilities or vehicles)
- Present at the inspection of animal production, animal and animal products distribution
- Present at the inspection of animals at fairs, markets and exhibitions
- Present at the inspection of breeding and housing facilities
- Present at the inspection of vehicles for transport of animals, animal products and raw materials
- Present at the inspection of facilities for slaughtering, processing, refining, storage and transport of animal products and raw materials

4) Obstetrics and reproduction of domestic animals

- Examination of breeding cows
- Pregnancy diagnosis
- Insemination of female domestic animals
- Presence at difficult births
- Performing easier deliveries
- Assistance in caesarean section
- Diagnostics and treatment of infertility
- Retention of placenta
- Assistance in embryotomy
- Vaginal and uterine prolapse
- Vaginal and intrauterine application of drugs

- Resuscitation of newborn calves, treatment of newborn calves
- Diagnosis and treatment of mastitis with application of drugs
- Treatment of metabolic diseases in puerperium
- Examination of male sex organs and assessment of sperm
- Management of the sexual cycle of female domestic animals
- Castration of female domestic animals

5) Surgery, orthopaedics and ophthalmology

- Use of asepsis and antisepsis (sterilization, disinfection, preparing hands and operational area)
- Application of general and local anaesthesia in domestic animals
- Assistance in performing surgical examinations and surgical procedures
- Treatment of wounds recognition and treatment of certain types of wounds
- Diagnosis of lameness
- Basic surgical intervention in the pathology of hooves
- Castration of male domestic animals
- Surgical treatment of hernia
- Performing diagnostic and therapeutic laparotomy of domestic animals
- Eye examination in daylight, in dark chamber, examination of eye background

Main activities and tasks of each student during obligatory practical work in Croatian Veterinary Institute in Zagreb (64 hours), 4 students per group:

Veterinary public health:

- Standard microbiological procedures in animal foodstuffs control
- Standard microbiological procedures in feed control
- Analytical methods in testing the quality of animal foodstuffs and animal feed
- Analytical procedures in animal foodstuffs control determining residues of banned substances
- Control and registration of veterinary-medicinal products

Diagnostics and control of infectious and parasitic diseases:

- Fundamentals of general pathology with emphasis on the pathology of pigs
- Pathology of domestic and wild ruminants and diagnostics of transmissible spongiform encephalopathy (TSE)
- Diseases of aquatic animals
- Diagnostics of salmonellosis, listeriosis, anthrax, and other important diseases of animals, determining the susceptibility of bacteria to antimicrobial drugs
- Laboratory diagnostics of mastitis
- Serological, bacteriological and molecular diagnostics of bacterial zoonoses (expert mentor)
- Parasitological diagnostics
- Diagnostics of classical swine fever and fundamentals of molecule methods in diagnostics of viral infections of animals
- Methods and procedures in laboratory diagnostics of viral diseases with special reference to rabies
- Serological diagnostics of viral diseases

Main activities and tasks of each student during obligatory practical work in The Ministry of Agriculture (20 hours), 4 students per group:

Animal health protection

- a) Crisis planning (making contingency plans, organizing simulation exercises on the breakout of infectious diseases, Crisis Centre)
- b) Animal diseases control program (designing and monitoring of annual and perennial programs of

measures for the detection, control, prevention and eradication of animal diseases and zoonoses in accordance with epizootologic state)

- c) Data analysis and reporting (preparing reports on the occurrence and spreading of disease)
- d) Zoonoses (designing national programs, reports, basic studies)

Animal health protection

- a) Veterinary service organization (procedure for assigning and revoking authority to veterinary organizations)
- b) Financing animal health protection measures (design of programs)
- c) Tagging and registration of animals (inspection of registers, VPG)
- *d) Welfare (registers, housing conditions)*

Veterinary public health

- a) Foodstuff hygiene meat, milk, eggs, honey, fish and shellfish (access to registries, necessary requirements for facilities to be fulfilled, assessment of facilities)
- b) By-products of animal origin (access to the registries, categorization, disposal)
- c) Veterinary-medicinal products (access to the list of registered drugs, making decisions on putting drugs into circulation)
- *d) Veterinary public health*
- e) Residue monitoring (Development of national control plans, reports)
- *f)* Animal feed (access to registries, distribution, additives)

International cooperation and EU accession negotiations

- a) Synchronization of legislation (EU legislation, making annual plans for adjustments, transposition into national legislation)
- *b) Central Veterinary Information System (CVIS), access to CVIS (manner of keeping registers and databases, opportunities provided by the data).*

Describe clinical exercises in which students are involved prior to the commencement of clinical rotations.

During the third of study, before the beginning of clinical rotations, conduct of extramural obligatory subjects *CFW*, *PCW* and *AMC*, all students are taught in obligatory subject *Propedeutics*. As stated before, this subject includes 45 hours of lectures and 60 hours of clinical work. Under the supervision of the teachers, students learn how to take history from the owners, assess the overall status and habitus of animal, determine trias with domestic animals (horse, cow, dog, cat, goat and sheep), examine visible mucous membranes and lymph nodes. In addition, students are taught on how to properly, clinically inspect each organic system (respiratory, cardiovascular, digestive, nervous and urinary). Under the supervision of the teacher, the student must perform *standard practical procedures* on different kinds of animals: horse, cow, dog and cat. Student's activity is awarded by additional points in clinical work, which is an integral part of the final grade in *Propedeutics*. Procedures for which are earned are:

- 1 Taking history
- 2 Assessment of overall status
- 3 Assessment of habitus
- 4 Determining trias
- 5 Examination of peripheral circulation and assessment of pulse quality
- 6 Assessment of normal and pathological breathing
- 7 Examination of visible mucosa
- 8 Examination of accessible lymph nodes

- 9 Recognition of skin efflorescences
- 10 Examination of the ear and external auditory canal
- 11 State of consciousness
- 12 Determining the rumination quality

Respiratory system

- 13 Nose examination
- 14 Nasal cavity examination
- 15 Larynx examination
- 16 Trachea examination
- 17 Thyroid gland examination
- 18 Chest inspection and palpation
- 19 Lungs percussion and auscultation

Heart and circulation

- 20 Heart inspection, palpation, percussion and auscultation
- 21 Palpation of peripheral arteries and veins

Digestive system

- 22 Mouth examination
- 23 Pharynx examination
- 24 Esophagus examination
- 25 Stomach examination
- 26 Abdomen inspection, palpation, percussion and auscultation
- 27 Rectal examination
- 28 Examination of rumen and rumen contents
- 29 Examination of reticulum
- 30 Examination of omasum
- 31 Examination of abomasum
- 32 Test on foreign body
- 33 Endometaloscopy

Urinary system

- 34 Inspection and palpation of kidneys
- 35 Prostate examination
- 36 Urine examination

Nervous system

- 37 Examination of brain nerves
- 38 Testing of reflexes
- 39 Testing of senses
- 40 Testing motility
- 41 Analysis of cerebrospinal fluid

Diagnostic and therapeutic procedures

- 42 Venipuncture
- 43 Giving subcutaneous and intracutaneous injections
- 44 Giving intramuscular injections
- 45 Giving intravenous injections
- 46 Setting up the venous passage
- 47 Taking swabs
- 48 Bladder catheterization
- 49 Abdominocentesis
- 50 Thoracocentesis
- 51 Pericardiocentesis
- 52 Lymph node aspiration
- 53 Inspection of anal sacs
- 54 Work with 6-channel ECG
- 55 Reading ECG
- 56 Probing domestic animals

All students are required to take obligatory clinical subject *Internal Diseases of Domestic Animals* in the 4th year of study, within which they conduct different 'standardized practical procedures' on different types of animals. The subject includes 90 hours of lectures, 120 hours of programming exercises intended for clinical work, the total of 210 hours per student. The subject carries 16 ECTS and it is shown in Table 4.2. Students are divided into groups of 15 students which are then divided at the Internal Diseases Clinic into smaller subgroups of 3 to 5 students. The subject is included in rotations with other classical clinical subjects.

The earliest experience and the 'first contact' with animals are provided to all students in practical exercises within the obligatory subject *Zoology*, placed in the 1st year of study. Very early student acquire knowledge of the basic taxonomy of domestic and wild animals. For that purpose, students start practical fieldwork and with the teachers from the Department of Biology they visit the Zagreb Zoo (2 hours per student), Forest Park *Maksimir* (2 hours per student) and Nature Park *Lonjsko Polje* (6 hours per student) (see Table 4.2bis) with which the Faculty has signed agreements on mutual cooperation (total of 10 hours per student).

During the teaching of obligatory subject *Animal Breeds Characteristics* in the 2nd semester of the 1st year of study, all students acquire knowledge on basic veterinary procedures for the description of animals (colour and signs, animal identification, assessing age, measuring and assigning points, age-sex categorization, animal physique – description of parts of the body and whole body, records and production characteristics) and different animal breeds. For that purpose students are trained on family farms (5 hours per student). In 2nd year of study, within subjects *Animal Breeding and Production* (12 hours per student) and *Hygiene and Housing of Animals* (6 hours per student), fieldwork is conducted on farms for breeding of dairy cows, centre for the production of breeding *Charolais* bulls and and beef cattle production farms. Teachers who teach theory of livestock and animal production are included in practical fieldwork training. Students spend an additional 23 hours doing practical extramural fieldwork (5+12+6=23 hours per student).

Outline the student involvement in the emergency and hospitalisation activities of the clinics.

It is obligatory for all students during rotations in the classical clinical subjects to participate in the hospitalization and emergency activities while on night duty. Students are present during admission of the usual domestic animal species and performance of basic emergency procedures. They acquire skills related to admission and management of patients (listed in Annex IV of SOP under 2.3.2 and 2.3.3 and skills related to emergency cases, which is in accordance with the recommended knowledge which each student should acquire (Annex IV, under 2.3.4). Emergency activities include: treatment of wounds, disinfection, cleaning, limb immobilization, resuscitation methods, bleeding control, shortness of breath, eye and ear injuries, dizziness, clinical deterioration, burns, tissue damage, internal organ damage and heart failure. During the admission of small animals, students take history under adequate supervision, perform clinical examinations, suggest diagnostic procedures, talk to owners and postgraduates, set the differential diagnosis and diagnostic management plan for the case. In addition (see Annex IV, under 2.3.6, 2.3.7, 2.3.8 and 2.3.9) they collect and take care of the transport of samples and performance of standard laboratory tests, interpretation of the same and also those performed by other laboratories. They use X-ray, ultrasound and other technical equipment as diagnostic tools. They follow the right procedure after making a diagnosis by reporting the cause of disease. They perform certification.

As from 2012/13, students of the 6th year of study will be able to enrol the newly approved elective *Emergency and Intensive Veterinary Medicine*. The objective is to master the basic knowledge and procedures which result in the proper assessment, treatment and stabilization of the patient. Upon the completion of the course, students will be able to:

- Triage emergency patients, open venous passages, conduct the ABC of reanimation;
- · Recognize and stabilize patients of various etiologies in shock;
- Recognize and stabilize patients with surgical emergency situation;
- Recognize and stabilize patients with internist emergency situation;
- Recognize and stabilize patients with obstetrical emergency situation;
- Stabilize the horse with colic;
- Perform basic intensive treatment.

Specify student participation in the activities of the mobile clinic and indicate whether or not the hours spent in the mobile (ambulatory) clinic are included in those in Table 4.2.

As detailed in the previous Subchapter all students of 5th and 6th year, within the obligatory subject *AMC* (120 hours per student), participate in extramural clinical training and they develop their skills in the field with the help of their teachers. Students go to contracted veterinary institutions for the purpose of improving their clinical skills. Hours spent in practical work within *AMC* (N=120 per student) are included in Tables 4.2, 4.2bis and 4.5 together with hours spent in obligatory subjects *CFW* (180 hours per student), *PCW* (120 hours per student) and *HH* (15 hours per students), which together makes a basis for professional training in the field.

4.1.4 OBLIGATORY EXTRAMURAL WORK

These are training periods that are an integral part of the curriculum, but which are taken outside the Faculty. Please make a distinction in respect to the nature of the work, for instance work on farms, training in a veterinary practice or in Food Hygiene/Public Health with a commercial or government organisation.

In the first four years, during the teaching of certain obligatory subjects, students are required to perform practical training outside the Faculty in basic, zoo-technical, certain preclinical and clinical subjects, which are an integral part of the curriculum.

By doing specific practical work after the acquisition of basic theoretical knowledge in lectures in different subjects, students are allowed to specialize and work independently to a certain measure, under the supervision of a teacher. Besides, practical training gives them opportunity to compare theoretical knowledge acquired during the courses with everyday practice knowledge they will have a chance to acquire themselves.

The success of implementation of practical work as a special teaching form included in a number of regular subjects is closely related to the student's level of interest in such kind of work. Although it requires complex organization and additional commitment of the teachers, it has been agreed that such work must take place in as small groups as possible. As a result, each student can get the necessary help on specific task, with the possibility of checking the success of the student's work.

Practical training, which is an integral part of the curriculum has a long tradition, so these kinds of practical training have changed and expanded over the years. All students from 1st to 6th year of study must participate in extramural practical work included in a number of obligatory subjects with 546 hours per students which is illustrated in the table below. In addition to that, students are also practically trained if they have chosen study track *SCA* (19 hours), *FAH* (87 hours) and *VPH* (13 hours). The table below shows hours spent in extramural practical work, included in obligatory subjects by years of study and obligatory elective subjects included in the study tracks.

STUDY YEAR	HOURS IN EXTRAMURAL TRAINING Study track SCA	HOURS IN EXTRAMURAL TRAINING Study track FAH	HOURS IN EXTRAMURAL TRAINING Study track VPH
1 st year	29	29	29
2 nd year	22	22	22
4 th year	35	35	35
5 th year	121	121+45=166	121
6 th year	339+15+4=358	339+42=381	339+13=352
TOTAL	546 +19=565	546 +87=633	546 +13=559

Of the 86 hours included in obligatory subjects from the 1st to 4th year, 51 hours per student belong to extramural practical fieldwork through the following obligatory subjects in 1st and 2nd year of study:

- Introduction to Veterinary Medicine (14 hours per student),
- Zoology (10 hours per student),
- Animal Breeding and Production (12 hours per student),
- Animal Breeds Characteristics (5 hours per student),
- Hygiene and Housing of Animals (6 hours per student)
- Applied Animal Nutrition (4 hours per student)

51 hours per student

In the first year of study during *Introduction to Veterinary Medicine* students get acquainted with different types of activities related to veterinary medicine, directly in veterinary organizations. As we have already stated, during *Zoology* and *Animal Breeds Characteristics*, students make 'the first contact' with domestic animals. Practical fieldwork, which is an integral part of subjects in the area of animal production, *Animal Breeds Characteristics*, *Animal Breeding and Production*, *Hygiene and Housing of Animals* and *Applied Animal Nutrition* introduces students to the breeding of beef cattle and housing systems for dairy cows and the milking parlour. We would also like to emphasize practical fieldwork related to the production of animal feed which is carried out at the Animal feed factory Kušić promet d.o.o, Sveti Ivan Zelina near Zagreb. All students are taken to the factory by the Faculty' buses and they spend 4 hours per student at the factory.

Practical fieldwork within the listed subjects is performed at the following institutions:

Public institutions – zoos, nature parks, forest parks:

Public institution, the Zagreb Zoo, Maksimirski perivoj bb, Zagreb, 10000, Tel.: ++ 385 (1) 2302 198, faks: ++ 385 (0)1 2302 199, Reg.no.: 2262622, OIB: 69262261098 e-mail: biolog.zoozg@zg.t-com.hr, http://www.zoo.hr/

Public Institution "Maksimir" - Forest park Maksimir Maksimirski perivoj bb, HR-10000 ZAGREB; Reg.no.: 1438174; OIB:78356795960 Tel.: +385 1 2320 460, faks: +385 1 2320 461 e-mail: park-maksimir@park-maksimir.hr, http://www.park-maksimir.hr

Public Institution Lonjsko polje, PP Lonjsko polje, Reg.no::080153947, OIB:1300997 tel.: ++385 (0)44/672-080, 611-190, fax: ++385 (0)44/606-449; e-mail: info@pp-lonjsko-polje.hr

Vetrinary Institute, Križevci:

Veterinary Institute Križevci – A subsidiary of Croatian Veterinary Institute in Zagreb, Zakmardijeva10, 48260 Križevci, tel. 048/681-16

Centre for reproduction:

Centre for Reproduction of Croatian livestock, d.o.o. CRSH, Bani 83, 10 010 Zagreb; Reg.no: 3218872 OIB: 18386202945 Tel: +385 1 2441 411, Fax: +385 1 2441 027; e-mail: info@crsh.hr

Heifer farms:

Vukovina heifer farm, Vukovina Mesnice Fiolić d.o.

Livestock and crop production:

Family farm '"Đakula' owner: Đakula Rodoljub Bliski kut, Sjeverovac 23, Sisak PB 0502969370021 Reg.no. 57997. Mob: 091 2048 169 **Dairy farm** Srednja gospodarska škola Križevci - Mislava Demerca 1 48260 Križevci (Dcoument: class 602-01/12-01/14)

Faculty of Agriculture (production of breeding bulls of Charolais breed in Croatia):

Centre for Grasslands, The Faculty of Agriculture, Svetošimunska cesta 25, 10000 Zagreb, Hrvatska, Reg, no.: 3283097; OIB: 76023745044 Tel. +385 (0)1 239 3777; Fax: +385 (0)1 231 5300 (*Class: 602-01/12-02/5, Ur. br.: 251-71-01-12-1*)

Production of prepared feed:

Agroproteinka d.d. Strojarska cesta 11; 10360, Sesvete, Hrvatska, Reg.no: 080124622, Tel. +385 1 2046776; Fax +385 1 2046774 www.agroproteinka.hr Kušić promet d.o.o. Psarjevo donje 61, 10380 Sveti Ivan Zelina Obrtničke usluge u biljnoj proizvodnji Franjo Bukal, Brezine 50, Farkaševac, tel:012727-732; OIB 48877389815

Finally, 35 hours per student in the 4th year of study are devoted to extramural fieldwork in connection to specific preclinical subjects: *Game Breeding and Management* (8 hours per student), *Biology and Pathology of Beneficial Insects* (8 hours per student), *Biology and Pathology of Aquatic Organisms* (4 hours per student) and classical clinical subject *Obstetrics and Reproduction I* (15 hours per student). Here is a list of institutions in which part of the curriculum of the fourth year of study is organized:

Training grounds for game breeding:

Hunting ground Črnovšćak, Dugo selo, FVMUZ

Fish farming:

Fish farming Poljana d.d., MILAN BOŽIĆ, Ribnjaci bb, 43283 Kaniška Iva "LEKO" d.o.o. Ribogojilište Gacka

Beekeeping:

Family farm:GLUMAC (Reg.no.: 0012420), Nikole Pavića 1 Čakovec.
Family farm ŽORAT (Reg.no: 0090210) Dukovec 14, 49223, Sv. Križ Začretje.
Family farm BILEK (Reg.no.: 0015209) Frankopanska 82, 43500 Daruvar.

All students of the fifth year of study take part in extramural practical training within *Food Hygiene and Technology* (46 hours per student) (for details see Section 4.1.5) and 15 hours of clinical fieldwork included in *Obstetrics and Reproduction II*.

Here is a list of institutions in which part of the curriculum of the fifth year of study is organized:

Slaughterhouse and meat processing units:

PIK VRBOVEC – MEAT INDUSTRY D.D. VRBOVEC, Vrbovec 10340 ZAGREBAČKA 148 Reg.no.: : 3100928, OIB: 78909170415 Tel: 01/2794777 Fax: 01/2794704 e-mail: pik-vrbovec@pik-vrbovec.hr, web: www.pik-vrbovec.hr
 SLAUGHTERHOUSE AND MEAT PROCESSING CEROVSKI d.o.o. Ulica Pod Goljakom 21 10253 Donji Dragonožec. Tel: 01 / 6227299; Fax: 01 / 6227301;OIB: 92895845170; Reg.no.: 1581228; E-mail: mesna-industrija-cerovski@zg.t-com.hr; www.mesna-industrija-cerovski.hr

SLAUGHTERHOUSE LORKOVIĆ, Vinski vrh 68C, Netretić, 47250 Novigrad na Dobri, Reg.no.: 92544819 Tel: 047/874006; Fax: 047/874006, E-mail: info@klaonica-lorkovic.hr

BUTCHER'S SHOPS KURILOVČAN D.O.O.VELIKA MLAKA, 10408NIKOLE KRAMARIĆA 32 Reg.no : 2428920 OIB: 68629019694 Tel: 01/6222096 e-mail: kurilovcan@hotmail.com

Dairy:

BOHNEC DAIRY , Koprivnička 17b, 42230 Ludbreg, tel: 042/819-177. LEDO d.d. Company for the production of icecream and frozen foods, Zagreb, Čavićeva 9; oib87955947581 Reg.no.: 3218821Marijana Cavica 9; 10000 Zagreb, Telefon: 01 2385 666, Telefax: 01 2385 669, e-mail: financije@ledo.hr web: www.ledo.hr

Obstetrics:

Faculty of Agriculture (production of breeding bulls of Charolais breed in Croatia):

Centre for Grasslands, The Faculty of Agriculture, Svetošimunska cesta 25, 10000 Zagreb, Hrvatska, Reg, no.: 3283097; OIB: 76023745044 Tel. +385 (0)1 239 3777; Fax: +385 (0)1 231 5300 (Class: 602-01/12-02/5, Ur. br.: 251-71-01-12-1)

List of institutions in which part of the curriculum of HH is organized in the sixth year of study:

Dairy farms included in extramural practical training within HH:

FAMILY FARM (dairy farm) Šimunčić, Pavlin Kloštar, 36 43203 Kapela Reg.no:HR 60012224 PA-VITA d.o.o. (dairy farm) Kašinska 64, 10 360 Sesvete. Mb: 1853635; MBS: 080496677; OIB: 89034440861 DAIRY FARM, MIRKO KATALENIĆ,4325 Gudovaca, Reg. no.: HR 50013995 DAIRY FARM, Josip Horvat, Stanići, Kapela,

During 10th and 11th semester (at the end of the fifth and beginning of the sixth) within a group of obligatory elective subjects which belong to individual study tracks (*SCA*, *FAH* and *VPH*), students additionally participate in obligatory extramural work. Obligatory practical work is organized for obligatory elective subjects: *Diseases and Treatment of Farm Animals* (42 hours), *Diseases and Treatment of Horses* (45 hours), *Diseases and Treatment of Pet Birds* (4 hours) and *Veterinary Public Health and Food Safety* (13 hours). List of institutions visited by students from the particular study tracks:

Horse breeding:

Croatian Centre for Horsebreeding, State Horse Farm Lipik, Lipik, Marije Terezije 27, Hrvatska, Reg.no.: 2456885, OIB: 09600687051Tel: 034 421 880; Fax: 034 421 844 Croatian Centre for Horsebreeding- State Lipizzaner horse farm Đakovo, Augusta Šenoe 45, Hrvatska, OIB: 59493690843Tel: +385 31 813 286; Fax: +385 31 822 530 e-mail: lipicanac@ergela-djakovo.hr Association for Therapeuitc and Recreational Horseback Riding 'Nada – Vrbovec' Adresa: Konak 26, 10340 Vrbovec , Reg.no.: 02076268 Telefon: 01/2796 130 e-mail: mldakic@gmail.com

Manufacture and sale of day-old chicks, animal feed and poultry meat:

VALIPILE d.o.o. Ive Politea 62, 10361 Sesvetski Kraljevec Tel.:01 / 204890, 01 / 2048900; Fax: 01 / 2048902, OIB: 00467090373 Mb: 3786358; E-mail:valipile@valipile.hr, Www:www.valipile.hr PIKO d.o.o., Volavje 54, 10450 Jastrebatsko, Matični broj: 0767514, Reg.no.: 080293126 OIB: 45344216353 Tel: 01/6286464 Fax: 01/6271414 Web: www.piko.hr

Students are also encouraged to organize their practical training abroad in veterinary institutions through various exchange programs (ERASMUS professional practice, CEPUS, etc.). The Faculty's clinics are available for practical work to all foreign students in the summer and winter semesters, and during annual leaves. Students are active in all the activities of the clinics. They take clinical rotations and work under a pre-scheduled program, on which they sign Agreement on studying between the domestic and foreign institutions.

Please indicate the guidelines per taining to this activity, and the manner by which it is assessed.

OBLIGATORY EXTRAMURAL WORK WITHIN SUB JECT:	Minimun	Minimum period ²⁾		Maximum period ²⁾	
	hours	% of total study time	hours	% of total study time	the work was done
AMC (work in veterinary organizations)	120	1.8			
CFW (work in veterinary organizations)	180	2.6			
PCW (work at HVI and MA)	84	1.3			
HH (work on farms)	15	0.2			
Extramural work from 1st to 6th year included in other	86 (I-IV)+61				
obligatory subjects (work on farms, feed factory, slaugh-	(V-VI)	2.2			
terhouse, dairy, bee-keeping, fish farms, family farms)	147				
TOTAL	546	8.2			

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

1) If these periods of extramural work take place during vacations, then the preceding academic year should be entered in the last column of Table 4.5 2) Where applicable

¹ Practical work during vacations

Intersemestral breaks and summer vacations are not used for obligatory extramural work. This is due to the limitations arising from the statutory provision of UNIZG, stating that all forms of training must end with the end of semester. Therefore, practical education is offered through volunteer form of work at the FVMUZC throughout the rest of the year (summer or other vacations, as agreed with the heads of clinics). This allows for the inclusion of students (volunteers, 4th to 6th year of study) in the work of the clinics, during day or night duty, in agreement with the teachers and under their supervision.

Students' tasks and duties during obligatory extramural work must be fulfilled in the form of bilaterally agreed activities listed in 'MPC'. The list is available on the Faculty's website and materials provided to students at the end of the final year of study.

For each form of obligatory extramural work within CFW and PCW, Student Registry issues 'Referral for professional practice' with the name of mentor and institutions in which the student will undertake practical work. The referral is signed by the Dean.

During *CFW, PCW, AMC* and *HH*, the student is required to maintain '*Practical work log*', which should include date, time all the tasks encompassed by practical work (with minimal practical competences). Obligatory extramural work is obligatory for all students. *Practical work log* is submitted in the form of *Report* for inspection and control, and provided all formal conditions are fulfilled, the report is verified. The Report combines all collected and filled sheets, referrals and certificates signed by mentors (outside the Faculty). Upon the successfully completed practical work, the Student Registry should put the following entry in the student register book. "Practical work completed", and as such is also recorded in the ISVU system with the mentors' signature.

4.1.5 SPECIFIC INFORMATION ON THE PRACTICAL TRAINING IN FOOD HYGIENE/ PUBLIC HEALTH

Describe arrangements for teaching in a slaughterhouse and/or in premises for the production, processing, distribution/sale or consumption of food of animal origin.

Department of **H**ygiene, **T**echnology and **F**ood **S**afety (DHTFS), of the Veterinary public health and food safety Division is in charge of organization and conduct of the group of courses which educate students in the area of food hygiene and public health.

The subject matter is core subject for all students enrolled in *Food Hygiene and Technology (FHT)*, offered in 5th year of study (9th and 10th semester) with 165 hours per student and 12.5 ECTS (see Table 4.2 and 4.2bis) By selecting a study track, the student automatically opts for the group of subjects in 5th and 6th year of study, which are part of the chosen study track, and they are obligatory elective subjects (Table 4.3b) taken only by the students who have selected *Veterinary public health (VPH) study track*:

- Veterinary Public Health (11th semester/90 hours per student/3.5 ECTS);
- Food Hygiene and Quality Control (10th semester/45 hours per student/3.5 ECTS);
- Veterinary Legislation and Food Safety Control (10th semester/45 hours per student/3.5 ECTS).

In the 11th semester students of *VPH* study track can select following electives of Type 2 (Table 4.4c) offered only to students of the study track by which 7.5 ECTS are earned:

- Carcass Quality at the Slaughter Line (CQSL) ;
- Hygiene and Quality of Fish Meat (HQFM);
- Hygienic Quality of Game Meat (HQGM);
- Hygiene and Quality of Poultry Meat (HQPM);
- Autochthonous Dairy Products (ADP);
- Autochthonous Meat Products (AMP).

In total 58 students were enrolled in academic year 2011/12, and they all took classes in core subject *FHT*. The subject is organized every academic year and it includes practical and field training in and outside the Faculty. Students are taken to the field by the Faculty's buses or they use the public transport. Organization, according to the teaching forms, is shown later.

In the same academic year, 21 out of 28 fifth year students were required to take the subjects from the *Veterinary public health* track, since they opted for this study track in the fifth year of study.

Total number of hours for obligatory and obligatory elective subjects in study track VPH in academic year 2011/12.

Course	Subject status	Lectures	Seminars	Supervised practical training	Total	ECTS
Food Hygiene and Technology (FHT)	Obligatory	60	0	105	165	12.5
Veterinary Public Health (VPH)	Obligatory elective	49	17	24	90	3.5
Food Hygiene and Quality Control (FHQC)	Obligatory elective	11	4	30	45	3.5
Veterinary Legislation and Food Safety Control (VLFS)	Obligatory elective	28	13	4	45	3.5
Total		148	34	163	345	23

In addition to the general objectives and tasks in education of doctors of veterinary medicine, a specific goal in terms of these subjects is to train the students to independently perform professional tasks, apply scientifically proven standards of hygiene and technology within veterinary supervision and evaluate the hygiene and food quality. This is only possible by education in the area of application of processing methods (technology) in the production of hygienically safe quality products, and all in the context of improving veterinary public health.

Knowledge and skills acquired in subjects in study tracks and elective subjects are deepened all the way to specialized knowledge in the area of food safety. Students are trained for independent work in control and monitoring of biological, chemical and physical contaminants in raw materials, products and the food chain. Students are also introduced to concepts of production control (HACCP) and prerequisite programs. They obtain knowledge in the area of animal hygiene, animal husbandry and nutrition, and use them in the context of the food chain. Special attention has been paid to control of zoonoses and monitoring of veterinary drug residues in animal origin foodstuffs.

Specifically, after finishing the core subject *FHT*, the student will be competent in:

- Handling animals in transport and in slaughterhouse according to the welfare principles;
- · Monitoring and controlling animal slaughtering process,
- · Inspection of meat and organs on the slaughter line, evaluation of quality,
- · Assessment of meat freshness by means of physico-chemical test procedures,
- · Meat sampling for laboratory purposes,
- · Bacteriological examination of meat, interpretation of findings and writing reviews,
- Inspecting meat for the presence of *Trichinella* sp.,
- · Record keeping, labelling, reporting on veterinary supervision in the production and distribution of meat,
- · Categorization and classifying meat on the slaughter line, meat labelling,
- Assessing meat quality by physico-chemical test procedures,
- · Sensory inspection of animal foodstuffs,
- Determination of the natural composition of milk, density, milk fat, dry and non-fat solids,
- Detection of adulteration in milk, determining milk freshness,
- Proving the pasteurization and sterilization of milk process,
- Determination of somatic cells in milk,
- · Bacteriological testing in the control of milk safety and hygiene of facilities,
- Determining hygienic quality of dairy equipment, swabs and washings,
- Proving antibiotics, disinfectants and other harmful substances in milk,
- Determining the quality of thickened milk, cream, butter, sour milk products, cheeses, ice cream,
- Understanding the technological process in the dairy,
- · Veterinary control and supervision in markets and fish markets,
- Evaluating the quality of meat, fish and egg products,
- Conducting sanitation in foods industry,
- Teamwork problem solving, working in small groups, presenting of analyses results.

After successfully completing the all forms of teaching in obligatory subjects *VPH* related to track the student will be competent in:

- Making HACCP plan,
- Evaluation of the animal production system due to risk factors,
- Interpretation of the data on the genetic basis for yield and quality of products (food) from quality bred animals,
- Procedures for general prophylaxis for emergence and spread of foodborne zoonotic diseases,
- Application of disinfection and control methods of harmful insects and rodents in the area of public health,
- Collecting material for parasitological testing,
- · Identifying parasites, parasites parts and developmental stages in different samples,
- Isolation of parasites and determination.

After successfully completing the all forms of teaching in obligatory subject *FHQC* related to track the student will be competent in:

- Determining microbiological food quality,
- Determining basic chemical composition of food,
- · Determining nitrates, nitrites and polyphosphates in food,
- Determining meat kinds in food,
- Performing sensory evaluation of food.

After successfully completing the all forms of teaching in obligatory subject *VLFSC* related to track the student will be competent in:

- Applying legislative procedures,
- Writing sampling records,

- Writing findings,
- Writing opinions.

After successfully mastering the elective subject *ADP*, the student will be competent in:

- Determining microbiological quality of fresh milk from family farms,
- Determining chemical quality of autochthonous dairy products,
- · Sensory evaluation of autochthonous fermented dairy products,
- Sensory evaluation of autochthonous cheeses.

After successfully mastering the elective subject *AMP*, the student will be competent in:

- Determining microbiological quality of autochthonous meat products,
- Determining chemical quality of autochthonous meat products,
- Sensory evaluation of autochthonous meat products.

After successfully mastering the elective subject *HQGM*, the student will be competent in:

- Determining microbiological quality of game meat,
- · Determining chemical quality of game meat and game meat products,
- · Sensory evaluation of game meat products,
- Evaluation of game meat freshness.

After successfully mastering the elective subject *HQPM*, the student will be competent in:

- Determining the microbiological quality of poultry meat,
- Determining the chemical quality of poultry meat,
- Sensory evaluation of poultry meat products,
- Evaluation of poultry meat freshness

After successfully mastering the elective subject *CQSL* the student will be competent in:

- · Classification and categorization of cattle carcasses,
- · Classification and categorization of pig carcasses,
- Classification and categorization of sheep/lamb carcasses.

After successfully mastering the elective subject *HQFM* the student will be competent in:

- Evaluation of fish freshness,
- Microbiological testing of fish,
- · Determining chemical quality of fish meat,
- Parasitological examination of fish parasites important for public health.

Organization of the practical form of training included in subjects, undertaken at/ and outside the Faculty.

Practical work in all the aforementioned subjects is conducted through exercise and seminars at the Faculty and through fieldwork in slaughtering facilities, meat processing plants, dairies and markets.

FVMUZ "on-site" practical training

a) Form of training: laboratory exercises (chemical and microbiological)

Practical exercises are conducted in practical training room, chemical and microbiological laboratory of the DHTFS. The practical training room is 25 m². It has got multimedia equipment. Each student works at his/her own workstation. The room is used for laboratory exercises (sensory test, chemical and microbiological analyses of milk, meat, eggs, fish and their products, fats and honey). The same room is also used for preparatory exercises before students leave for practical work to slaughtering facilities, with the aid of video-materials and slides from the DHTFS collection.

The practical training room meets the requirements for the needs of student practical training. Students do the exercises individually.

Specific laboratory exercises within study tracks are performed in the DHTFS chemical and microbiological laboratories which are equipped in a way that they satisfy the needs for laboratory work in the area of food control. Small groups of students work under the supervision of the teachers and they master the skills in performing individual tests.

b) Form of training: seminars

The aforementioned practical training room is also intended for seminars which are held in groups of up to 30 students. Students prepare their own seminars (one or more authors). Seminar paper is handed in in a written form and it must contain a cover page with information on the subject, student, and the title of the seminar paper. The paper also contains introduction, literature data, conclusion and list of references. The paper is presented to the students and evaluated. Student activity is additionally awarded by credits.

In some subjects, students do not write seminar papers. They work together with their teachers on a given subject matter. They work in groups of four or five. After the teacher's introduction, students need to find a solution to a certain problem and present it to the whole group.

c) Form of training: preparation exercises before visit to a slaughter facility

These exercises are envisioned as preparation for extramural visit to a slaughter facility. The aim of the exercises is to prepare students for the visit and acquire skills in *ante mortem* examination of meat and organs in the facility. Students become familiar with the construction requirements, manner of operation and duties of an authorized or official veterinarian.

9th and 10th semester students who are taking the subject *FHT*, are trained in the acquisition of skills for independent conduct of professional jobs within veterinary inspection and control in production, processing, refining, storage and distribution of animal origin foodstuffs. In terms of practical work, the aim is to enable students to implement scientifically proven standards in the framework of the official veterinary control and supervision and evaluation of food quality.

Students who choose VPH study track further deepen the knowledge they acquired in the core subject. In line with the global emancipation of veterinary public health, students are offered additional (specialized) knowledge beyond the usual scope and objectives of veterinary supervision in public health safety. Students are trained to apply the HACCP system and its control in the food production and also to apply the latest knowledge on 'good veterinary practice' in the control of biological, chemical and physical contaminants in raw materials and products (food) and in the food chain. Students become familiar with the trends in chemistry, toxicology and analytics as a constituent part of veterinary supervision with regard to food hygiene and quality. They are also trained for an independent interpretation of chemical analysis results and bioresidue findings in terms of evaluation of food hygiene and quality. In addition to that, they learn the techniques of proof and isolation of microorganisms which cause food spoilage and poisoning (foodborne infections and intoxications). They also learn contemporary principles of organization and functioning of veterinary inspection with regard to provisions of the Food act and legislation that develops food safety issues, risk analysis and organization of veterinary inspection in the field of supervision, control and food inspection. Skills that the student will acquire in practical training in obligatory and elective subjects within the track are listed in the IP (Information Package).

Students are therefore, in 9th, 10th, and 11th semester, included in practical work which includes following steps:

• Inspection of facility (building conditions, crossing of clean and unclean pathways, production line), hygienic conditions in the facility; meat industry processing plant, dairy plant, ice cream production plant.

- Evaluation of animal welfare within slaughtering facility.
- HACCP system, determining CCP and CP in slaughterhouse.
- Risk analysis.
- Official controls (inspection of the facility).
- Sampling of meat and organs for analysis.
- Sampling of meat products, milk and dairy products, eggs and products.
- Hygiene control of the plant (cleaning, washing, disinfection).
- Technology of milk and dairy products production.
- Product declaration.
- Distinguishing between marine fish, crustaceans and cephalopods.
- Determining freshness of aquatic organisms; parasitological test (ectoparasites).
- Evaluating freshness of eggs.
- Decorating sales points in markets.
- Writing records.
- Entering data in official computer program.

After successful completion of the course students will:

- Show adequate knowledge of legislation in the field of veterinary public health ad food safety, understand fundamentals of veterinary public health and food production technology.
- Understand importance of risk analysis and implementation of HACCP system and its control
- Be able to assess hygiene practices in production facility by knowing basic hygiene factors.
- Evaluate hygiene procedures in the facility and process control parameters.
- Interpret analyses results in order to assess food quality and safety.
- Have practical knowledge on food production.
- Define parameters of acceptability and/or /harmfulness of food for human consumption.

Indicate the distance to slaughterhouses where students undergo training, and the species covered. Outline the structure and the frequency of these visits (group size, number of trainers, duration, etc.).

Extramural practical work included in obligatory subject *FHT* and obligatory elective subject *VPH* from the track.

In terms of extramural practical work in *FHT* and *VPH* students go to slaughterhouses, meat processing plants, dairies, ice cream factory, they visit the Zagreb market and honey producers. Training is conducted in small groups of maximum 6 students. They are further divided in smaller groups who then work with their teachers and chosen experts from the selected plants.

a) Practical work in slaughtering facilities for meat products processing

A few slaughterhouses have been chosen for the training of students who need to master skills of veterinary inspection of animals before and after slaughter as well as inspection of meat and organs, the object itself and application of HSCCP system. One of the contracted slaughterhouses is an export slaughterhouse, part of *PIK Vrbovec Meat Industry*, and other slaughterhouses are *Butcher's shops Kurilovčan Ltd.*, *Slaughterhouse Lorković* and *Slaughterhouse and Meat Processing Cerovski Ltd. PEPA*.

The reason for choosing these plants, besides their proximity to Zagreb (Zagreb County and Karlovac County), is the fact that veterinary inspectors who are employees of the supervisory/control bodies of the slaughterhouses, are also specialists in the field of hygiene and animal foodstuffs safety, and they work together with students and the Faculty's teachers. Besides, students have an opportunity to see different types of slaughter lines and organization of work in slaughterhouses of small and large capacity. More facilities have been chosen due to the daily schedule of slaughter and one-day break of work,

which allows students to spend 5 days in row in fieldwork. Moreover, smaller scale slaughter operations (not a fast line process) allow for individual approach and work with students.

As a result of this, students perceive differences in the organization of work in an export slaughterhouse and in slaughterhouses oriented towards domestic market with bigger or smaller slaughtering capacity.

Students are present at *ante mortem* examination of animals, processing of cattle (heifers, calves), small ruminants (lambs), pigs (fattening pigs and piglets) and *post mortem* meat and organ examination. Students perform examinations individually, under the supervision of the teacher or a veterinary inspector.

At the same time, within subjects *FHT and VPH* students are able to learn fundamentals of control or supervision of application of HACCP system and implementation of official control. They get introduced to the work of veterinary inspectors and have access to records that are maintained while conducting control and supervision in a slaughterhouse. They get introduced to accompanying documentation (data on the food chain) and sequence of administrative procedures and manner of keeping records. They undergo trichinelloscopic examination of pig meat once more.

Students acquiant with the technological processes of production of meat products during they visit processing plants at *PIK Vrbovec Meat Industry, Slaughterhouse and Meat Processing Kurilovčan Ltd., Slaughterhouse Lorković* and *Slaughterhouse and Meat Processing Cerovski Ltd. - PEPA.* The choice of a few processing plants is important because of different organization of work in small and big plants, as well as the application of GMP or HACCP production program. This cycle of practical training is carried out in groups of 6 students. It clearly shows the production of certain meat products, from selection and preparation of the raw material, through all stages of production, to storage and distribution. Students participate in sensory examination of the product in meat industry conditions. Thus, they round up the previously acquired information obtained during lectures and exercises.

Description of plants for the conduct of contracted practical training outside of FVMUZ

PIK Vrbovec d.d is one of the largest meat industries in Croatia with over 70 years of experience in the production and processing of meat products, which is part of *Agrocor Group*. It is an expert slaughter-house under the supervision of European and U.S. inspection. With implemented HACCP and ISO 9001, it has been under constant control of authorized and official veterinary inspection. It has its own microbiological and chemical laboratory.

The town of Vrbovec, where the slaughterhouse is situated, is 44 km from Zagreb. It can be reached by motorway and students are transported by the Faculty bus.

Slaughterhouse and Meat Processing Kurilovčan Ltd. is a family business dealing with the production of meat and meat products. There is a low-capacity slaughterhouse, licensed for slaughter of ungulates and of cattle older than 30 months. The firm has implemented HACCP system and it is under the supervision of an authorized and official veterinary inspection.

Velika Mlaka, name of the place where the slaughtering facility is situated, is only 14 km from Zagreb and it accessible by public transport. Students are going to practical training by the Faculty bus.

Slaughterhouse Lorković is a small company for services and production and it is one of the best equipped slaughterhouses in Karlovac County. It provides services for slaughtering of cattle and carcass processing. It can process up to 250 pigs and 40 cattle on a daily basis. It is situated in Novigrad on the Dobra

river, in Karlovac County and it is 69 km from the Faculty. The road connectivity is good due to the passage of major roads. It is near motorway junction Zagreb - Bosiljevo – Split/Rijeka, with the plan of connecting the town with another road.

Slaughterhouse and Meat Processing Cerovski Ltd. PEPA has been in business for 10 years and it carries out production, processing and distribution of meat and meat products. It is licensed for slaughter of domestic and imported ungulates. The seat of the slaughterhouse is in Gornji Dargonožec (the city of Zagreb), located 25 km from the Faculty, about half an hour drive.

b) Dairy, ice cream and frozen-food factory

As part of their practical training students visit dairies, for which *Ludbreg Dairy Antun Bohnec* has been chosen. They also visit "Ledo" d.d. for the production and distribution of ice cream and frozen foods. Students are taken to the dairy by the Faculty bus, while they go to "Ledo" by public transport, since the factory is only 2.7 km from the Faculty. Students are present at reception of milk, and they go through the production plant accompanied by teachers and professionals employed at the dairy who explain each phase of the processing of milk, dairy products and cheese in daily production. Practical work includes sensory tests. In "Ledo" students get introduced to the production of ice cream, from the raw material, its processing and preparation, and all other phases in the producer in Croatia and the biggest distributer of frozen foods with more than 50 years of tradition. It exports to the EU and it is a part of Agrokor Group. An integrated management system is certified according to ISO 9001:2008 and it has complied with HACCP system since 1999. It owns certificates by retailers IFS and BRC. "Ledo" is only 2.7 km from the Faculty, which means that students can use the public transport.

Description of the facility for contracted extramural work

Ludbreg Dairy Antun Bohnec is situated in Ludbreg. The dairy produces milk, yoghurt, cream, butter and cheeses (cottage cheese, soft cheeses of the Mozzarella type, semi-soft cheeses (Gouda, Edam cheese, cheese spreads and processed cheese). *Bohnec Dairy* has also the implemented HACCP system. It has its own microbiological laboratory. It is situated in the town of Ludbreg, 90 km form Zagreb. It can be reached within an hour, since 70 km are covered by motorway. Students are transported to the dairy by the Faculty bus.

Medo-flor Ltd., Vodovodna 1, Donji Dragonožec is close to Zagreb (19 km). It is a company for the production of bee products, honey, royal jelly and pollen in which students learn about the whole technological process during practical work.

c) Markets ("Zagreb Holding")

Students visit the Zagreb Markets ("Zagreb Holding") within practical extramural work in Food Hygiene and Technology. The main Zagreb market ("Dolac Market") has been chosen for this kind of training. It was founded in 1930 and it is situated in the centre of the city. Students work in small groups (6 students) and they are accompanied by their teachers and a veterinary inspector. The largest fish market is situated within "Dolac". Students become familiar with the evaluation of freshwater and marine fish, crabs, cephalopods and shellfish that are in the daily market offer. They apply practical skills acquired during laboratory exercises with regard to evaluation of freshness of crabs and shellfish and veterinary inspection. The specific characteristic of Zagreb markets is sale of dairy products (fresh cheese and cream) produced in households or on family farms in a separate part of the market. There is also an offer of eggs, produced by registered producers. Students apply skills acquired during practical laboratory exercises (evaluation of freshness of dairy products and eggs) in order to conduct veterinary inspection of products offered in the market. Students reach the market by public transport, since it is located near the main square, only 3 km away from the Faculty.

d) Ministry of Agriculture – Veterinary Directorate

Students of VPH study track visit the Ministry of Agriculture which is located near the Faculty. Agreement on cooperation for the purposes of training the FVMUZ students was signed with the Ministry (*Document: Class: 402-08/12-582/1, Reg.no.br. 251-61/01/139-12-4*). Students are met by employees of the Veterinary Directorate who are either specialists or own a master's degree in hygiene and food safety, or a PhD in the field of veterinary public health food safety. Students are introduced to organization and activity of the Directorate, organization and work of veterinary inspection, manner of passing regulations and decrees, organization of supervision and monitoring and control of zoonoses. It is especially important for students to get acquainted with computer programs developed at the Ministry, designed for monitoring the results of official controls, import of cattle and meat, emergence of infectious diseases, etc. The Ministry is situated in Zagreb, only 3.6 km from the Faculty and it can be reached by public transport.

e) Croatian Veterinary Institute, Zagreb

Croatian Veterinary Institute (HVI) is professionally associated with the Faculty and it is also contractually tied to the Faculty in terms of conduct of extramural practical teaching on the Institute's premises. Students enrolled in VPH within their track go to the laboratories (Residues Laboratory, Food Microbiology Laboratory, Analytical Chemistry Laboratory) in which they are introduced to contemporary methods of determining residues and of food control as part of Croatia's monitoring system. Students learn about the organization of the Institute, manner of samples delivery, reception and processing.

In their work with students, teachers are assisted by authorized persons and heads of laboratories who are also professional mentors. As HVI is accredited as a testing laboratory within ISO17025, students also get acquainted with the work of microbiological, chemical or laboratory for the control of residues. Students have access to registries and documents issued upon completed analyses, and they also get introduced to CVIS, (Central Veterinary Information System) developed at the Institute.

HVI is located in Zagreb, Savska cesta 143, 6.5 km from the Faculty and it can be reached by public transport.

CONTINUING EDUCATION PROGRAM (Veterinary public health area)

In academic year 2011/2012, doctors of veterinary medicine were offered a specialized course in the area of veterinary public health:

Specialized course: Veterinary control of HACCP implementation system in food processing facilities

It is a course intended for doctors of veterinary medicine, all veterinarians in food industry and employees of accredited laboratories and other laboratories monitoring the food-processing units. It is envisioned as a specialized course for particular interest groups and SMEs, with small number of course participants who are in the same area of work. The course is a preliminary step for the application process for obtaining accreditation from Croatian accreditation agency for veterinary-sanitary inspection.

The aim is to familiarize the participants with principles of organization and functioning of veterinarysanitary inspection in meat, fish and dairy industry and to train them to implement and control implementation of HACCP system established by subjects in food business. Acquired knowledge relates to implementation and maintenance of control system, and its practical application in the food industry. Additional aims of the course includes working on specific chapters of legal normative acts related to the jurisdiction of veterinary inspection in control of meat, milk, fish and their products. Furthermore, it also aims at introducing participants to legislation which facilitates veterinary-sanitary control in food industry (Veterinary Act, Animal Husbandry Act, Food Act, Consumer Protection Act, Animal Welfare Act and Regulations which are based on these Acts.), as well as supervision and control procedures and sampling for analysis.

In practical lessons, participants learn about the development of HACCP plan intended for individual food-processing objects by respecting the principles of *Codex Alimentarius* and implementation of "good production practice". The aim is to train the participants to evaluate the existing HACCP plans, introduce corrective measures and audit.

POSTGRADUATE SPECIALIST STUDY: HYGIENE AND TECHNOLOGY OF ANIMAL FOODSTUFFS

The study was accredited in 2008. The duration of the study is 2 years (4 semesters) and it includes obligatory and elective subjects. The topic of the specialist thesis is chosen during the study. Program is formed in agreement between the student, his/her mentor and Head of study, in accordance with the topic content and with the approval of the FC. The study ends with the defence of the specialist work. Upon completion of the postgraduate study the student earns the qualification of a specialist who is theoretically and practically trained to work in the field of hygiene and technology of animal foodstuffs and veterinary public health. After passing all the exams in prescribed subjects and defence of the specialist work, the student earns the academic title of *Univ.mag.med.vet*. (*Univ.mag.aliment.animal*.).

DOCTORAL STUDY IN VETERINARY SCIENCES

Group of subjects within doctoral study related to the field of veterinary public health and food safety by which the academic title of Doctor of Science is acquired (PhD):

- C - C	1	1.1.1.1.1	1.1.11 (19) (19) (19) (19)	the second se	 I. S. S. S. S. S. Math. 		• I	I Company and the second	and the second sec		TC
FIC	JIIPA' I		onligatrov	/ and elective	SUDIACTS WITT	number of	' nours neede	a tor their	conduct and	number of FC	15
1 1 5			UDinguli Uy				nours neede		conduct and		
	j										

Course name (co-operator)	ECTS
First credit group:	
Biochemical and biological analytics in veterinary medicine	3
Second credit group:	
Hygiene and quality of game and rabbit meat	3
Epidemiology of food-borne diseases	4
Quality conditions of meat and meat products	3.5
Quality conditions of milk and dairy products	3
Chemical methods in food analysis	3
Chemical composition of foodstuffs of animal origin and changes during storing and processing	2.5
Laboratory methods in food microbiology	3.5
Management of foodstuff production and quality control	3
Hygiene and quality of honey	2.5
Evaluation of quality of poultry meat and eggs	3
Selected chapters of processing technology engineering	3
Modern procedures of milk processing	3
Hygiene and quality of fish, crabs and shellfish	3
Modern technologies in meat industry	3
Veterinary-sanitary control	3
Veterinary public health	2.5
Safety of meat and meat products	4

TET SVA











4.1.6 RATIOS

- These must be delineated from Table 4.1, 4.2 and 4.3.
- For explanation about ratios, see the section 'Main Indicators' of Annex I. The indicator derived from the ratios established is the denominator when the numerator is set 1.

4.1.6.1 GENERAL INDICATORS TYPES OF TRAINING

As indicated in Tables 4.1a,b and c, 4.2 and 4.3, figures for the numerator and denominator are defined as follows with regard to three diffrent study tracks:

Table 4.6a Study track: Small Companion Animals (SCA)

		Compulsory	electives (average)	Total
Figure	Total number of teaching hours	6675-465=6210	465*	6675
А	Lectures	1389		1389
В	Seminars	259		259
С	Self directed learning	1807		1807
D	Laboratory and desk based work	948		948
E	Non-clinical animal work	419		419
F	Clinical work ³	1283-565 ¹ =718 ²		1283 ³
G	Other	120		120

* The total number of hours (465) to be taken by each student out of the various subject groups is determined in the Study Program and in the Student Information Package. ¹Supervised practical training (extramural practice); ²Supervised, facutly-based practical training; ³Clinical work without extramural practice.

Table 4.6b Study track: Farm Animals&Horses (FAH)

		Compulsory	electives (average)	Total
Figure	Total number of teaching hours	6672-472=6200	472*	6672
А	Lectures	1362		1362
В	Seminars	292		292
С	Self directed learning	1807		1807
D	Laboratoryand desk based work	895		895
E	Non-clinicalanimal work	419		419
F	Clinical work ³	1305-633 ¹ =672 ²		1305 ³
G	Other	120		120

*The total number of hours (472) to be taken by each student out of the various subject groups is determined in the Study Program and in the Student Information Package.¹Supervised practical training (extramural practice); ²Supervised, facutly-based practical training; ³Clinical work without extramural practice

Table 4.6c Study track: Veterinary public health (VPH)

		Compulsory	electives (average)	Total
Figure	Total number of teaching hours	6671-465=6206	465*	6671
А	Lectures	1427		1427
В	Seminars	270		270
С	Self directed learning	1807		1807
D	Laboratoryand desk based work	891		891
Е	Non-clinicalanimal work	419		460
F	Clinical work ³	1272-559 ¹ =713 ²		1272 ³
G	Other	120		120

*The total number of hours (465) to be taken by each student out of the various subject groups is determined in the Study Program and in the Student Information Package. ¹Supervised practical training (extramural practice); ²Supervised, facutly-based practical training; ³Clinical work without extramural practice.

4.1.6.1 GENERAL INDICATORS TYPES OF TRAINING *Study track SCA*

		Denominator
R 6:	Theoretical training (A+B+C) = $\frac{3455}{2085} = \frac{1}{0.603}$ (D+E+F)	0.603
R 7:	Clinical Work (F) Laboratoryand desk based work 1367 = <u>1</u> + non-clinicalanimal work (D+E)	1.903
R 8:	Self directed learning (C) Teaching load (A+B+C+D+E+F+G) = $\frac{1807}{6675} = \frac{1}{3.693}$	3.693

4.1.6.2 SPECIAL INDICATORS OF TRAINING IN FOOD HYGIENE/PUBLIC HEALTH *Study track SCA*

		Denominator
R 9:	Total no. curriculum-hoursFoodHygiene/Public Health2= 646 = 1 Total no. Hours667510.332vet. Curriculum1	10.332
R 10:	Total no. curriculum-hours <u>Food Hygiene/Public Health</u> ² = <u>646</u> = <u>1</u> Hours obligatory extramural work 166 0.256 In Veterinary inspection ³	0.256

4.1.6.1 GENERAL INDICATORS TYPES OF TRAINING *Study track FAH*

		Denominator
R 6:	Theoretical training (A+B+C) = $\frac{3461}{1986} = \frac{1}{0.573}$ (D+E+F)	0.573
R 7:	Clinical Work (F) Laboratoryand desk based work + non-clinicalanimal work (D+E) $= \frac{672}{1314} = \frac{1}{1.955}$	1.955
R 8:	Self directed learning (C) = $\frac{1807}{6672} = \frac{1}{3.692}$	3.692

4.1.6.2 SPECIAL INDICATORS OF TRAINING IN FOOD HYGIENE/PUBLIC HEALTH *Study track FAH*

		Denominator
R 9:	Total no. curriculum-hoursFoodHygiene/Public Health2= 646 Total no. Hours6672vet. Curriculum1	10.328
R 10:	Total no. curriculum-hours <u>Food Hygiene/Public Health²</u> = <u>646</u> = <u>1</u> Hours obligatory extramural work 166 0.256 In Veterinary inspection ³	0.256

4.1.6.1 GENERAL INDICATORS TYPES OF TRAINING *Study track VPH*

		Denominator
R 6:	Theoretical training $\frac{(A+B+C)}{\text{Supervised practical training}} = \frac{3504}{2023} = \frac{1}{0.577}$ $(D+E+F)$	0.577
R 7:	Clinical Work (F) Laboratoryand desk based work + non-clinicalanimal work (D+E) = $\frac{713}{1310} = \frac{1}{2.010}$	1.837
R 8:	Self directed learning (C) Teaching load (A+B+C+D+E+F+G) = $\frac{1807}{6671} = \frac{1}{3.691}$	3.691

4.1.6.2 SPECIAL INDICATORS OF TRAINING IN FOOD HYGIENE/PUBLIC HEALTH *Study track VPH*

		Denominator
R 9:	Total no. curriculum-hours <u>FoodHygiene/Public Health</u> ² = <u>646</u> = <u>1</u> Total no. Hours 6671 10.326 vet. Curriculum ¹	10.326
R 10:	Total no. curriculum-hours <u>Food Hygiene/Public Health</u> ² = <u>646</u> = <u>1</u> Hours obligatory extramural work 166 0.256 In Veterinary inspection ³	0.256

Origin numerators, denominators

1: Total as derived in Table 4.1

2: Total as derived in Table 4.2, Subject 5

3: Figures to be taken from Table 4.5

Main indicators to be used in the evaluation of Veterinary Faculties

	Study track			Suggested values
	SCP	FAH	VPH	
R 6:	0.603	0.573	0.577	0.576
R 7:	1.903	1.955	1.837	1.952
R 8:	3.693	3.692	3.691	2.576-103.746
R 9:	10.322	10.328	10.326	0.725-98.437
R10:	0.256	0.256	0.256	0.061-0.881

4.2 COMMENTS

Please comment on the way in which the veterinary curriculum prepares the graduate for the various parts of the veterinary profession, especially under the specific conditions prevailing in your country/region. Please comment on the way the curriculum is structured and reviewed, on the major developments in the curriculum, now and in the near future, and on the local conditions or circumstances that might influence the ratios in 4.1.6.

In an effort to respond to complex challenges and needs of modern veterinary medicine in all its segments, the FVMUZ has designed a new curriculum, under the name IUGUSVM with disciplines that enable acquisition of all knowledge necessary for work on the all kind of positions in the field of veterinary medicine. This modern program of study is conducted according to the standards of the "Bologna Declaration" and university approved literature. The six-year study offers more opportunities for practical training, more attention is paid to quality assurance in teaching and assessment of acquired competences. The current curriculum has been designed on the basis of Croatia needs of veterinary profession at national level, taking into consideration study programs of leading veterinary faculties and EAEVE guidelines. Despite the fact that the old curriculum was clinically oriented, positive progress has been made by the adoption of new curriculum in several segments:

- Overall theoretical teaching has been reduced in favour of practical training;
- Three study tracks have been introduced for the first time in the ninth semester of study (SCA, FAH and VPH);
- Practical clinical training has been introduced and enriched with a number of teaching hours in practical work;
- Electives have been introduced which enable students to complete and deepen their knowledge of certain obligatory subjects.

Introduction of the **three study tracks** has been an extremely innovative and positive contribution to the preparation of students for veterinary practice. Upon enrolment in the fifth year of study, students select one of the study tracks. They are designed to stimulate student's interest in one of the selected fields in veterinary profession. The selected track offers key theoretical knowledge and all important practical training and acquired skills in each of the chosen segments of veterinary activity, as well as in all other related activities. Special emphasis is put on acquisitioning student competences through team work in small groups. Students thus actively learn how to solve problems, they gain experience in team work and veterinary management. Clinical practical work is offered to all students as early as in the third year of study, since practical work in the area of hygiene and food safety is provided in slaughterhouses, markets, meat industries, dairies and laboratories. Laboratory skills and work safety in laboratories are learned from the first year of study.

A number of subjects have been designed for the purpose of study tracks, with new contemporary approach to teaching. Students have recognized the importance of the study tracks, and many of them are able to decide promptly and confidently which track to choose. We also believe that the main characteristic of the study tracks is rising of professional expertise in the chosen field of veterinary medicine. Taking into account only the mandatory activities (work on graduation thesis, foreign language classes and physical education excluded), students spend 4.4% of total workload on basic subjects (300 hours) and 23.4% on basic sciences (1565 hours); 30.4% on clinical sciences (2030 hours), 19.7% on animal production (1315 hours), 9.3% on food hygiene/public health (646 hours), regardless of the chosen track. Supervision of practical activities in SCA study track, which we give here as an example, has shown that 54.4% (2650 hours) (948+419+1283=2650) of the total hours (4868), belong to practical and clinical

intramural and extramural teaching (total teaching hours 6675-1807=4868). The other two study tracks (FAH and VPH) also retain a comparable ratio within the core subjects (Tables 4.4b and c). In our opinion, the implementation of the current curriculum is balanced, since the curriculum (regardless of the study track) includes a reasonable number of hours in practical training, according to Directive 2005/36EC, which is the basis for acquisition of essential competences in different aspects of veterinary profession.

In the implementation of the curriculum, emphasis has been put on practical, and even more on clinical training, as indicated by the fact that the ratio of lectures and seminars with regard to practical and clinical intramural and extramural work is 1645/2650 for study track SCA, and it will be additionally improved for students who choose obligatory elective clinical subjects and clinical subjects from the enrolled track. The other two study tracks (FAH and VPH) maintain a very comparable ratio within the mentioned theoretical/practical forms of teaching (Table 4.4b and c).

The baseline for determining strategic guidelines and orientation of the study programme at the FVMUZ is found in the Bologna concept of the curriculum which is based on intended learning outcomes. "National Qualification Framework", which was adopted at the university level and EAEVE's standard recommendations, give general guidelines and direction for the development of undergraduate and graduate study. On the basis of these recommendations, student's learning outcomes have been clearly defined, as well as which competencies and skills are acquired within a particular subject in the study programme of veterinary medicine. The committee for the implementation of IUGUSVM programme has already undertaken a comprehensive analysis of the current curriculum. After six years implementation of the study base on the Bologna principles (including the content of each subject and composition of each form of teaching) the collected data allows to assess the effectiveness of the current curriculum and propose new amendments, if necessary. By our opinion there are no local conditions or circumstances that may affect ratios in 4.1.6 in the near future.

4.3 SUGGESTIONS

If the denominators in 4.1.6 are not meeting the range as indicated in Annex I, Supplement A, what can be done to improve the ratios?

As it has been shown in 4.1.6.1, all the denominators of IUGUSVM programme meet the range. In order to achieve standard veterinary competences, it is necessary to regularly collect data on the success of the implementation of the study programs and on the achievement of defined learning outcomes. In this process, an important issue belongs to periodical evaluation of study programs according to determined "Efficiency indicators" (achievement of learning outcomes, ratio between enrolled students and graduates, results of student satisfaction questionaries, expediency of graduates first employment, etc.) in order to ensure regular updating of all study programs and constant improvement of the quality of educational process.

CHAPTER 5. TEACHING AND LEARNING: QUALITY AND EVALUATION









Chapter 5. TEACHING AND LEARNING: QUALITY AND EVALUATION

5.1 FACTUAL INFORMATION

5.1.1 THE TEACHING PROGRAM

Describe the measures taken to ensure co-ordination of teaching between different departments, sections, institutes and services.

The ultimate responsibility for all teaching activities undertaken belongs to the FC Committees, and the refore is the responsibility of the Dean. The main duty of the FC Committees and the Dean is to oversee and coordinate all levels of study offered by the Faculty. The **C**ommittee for Integrated **U**ndergraduate and **G**raduate Study (CIUG), which carries out all counselling activities discussed by the FC at its sessions, is in charge of planning and organizing the study programme. In order to ensure coordination in teaching, the key roles have been entrusted to the following:

Vice-Dean for Integrated Undergraduate and Graduate Study. S/he (she currently) chairs the CIUG and has an advisory role in all teaching activities (for details on the composition of the CIUG, see Chapter 2, Subchapter 2.1). The Vice-Dean defines the agenda of the CIUG meetings and, during the semester, invites heads of years, who coordinate activities with student representatives of years, to meetings in order to solve problems in a timely manner. The Vice- Dean, on behalf of the Dean, oversees the implementation of teaching and organization of practical activities in the final year of study (subjects PCW, CFW, AMC and clinical work included in the classical clinical subjects).

The scope of work of the CIUG is regulated by the *Rules of Procedure on the Work of the Committee for Graduate Teaching, The Statute of the Faculty of Veterinary Medicine and the Regulations on Integrated Undergraduate and Graduate Studies of Veterinary Medicine).*

<u>Heads of Divisions</u>. As described in detail in Chapter 2, Subchapter 2.1, their main task is coordination, organization and management of departments, clinics and chairs including reporting to the Dean on the teaching carried out, cooperation with other departments and clinics of the Faculty and related chairs of other faculties and proposing the plan of work and programme of the chair.

<u>Division council</u> is an expert body of the division. The DC is comprised of employees holding scientificeducational, educational, scientific, associate and professional titles.

<u>The division council</u>: discusses all educational, scientific and professional issues relating to the division's activites, discusses and decides on the proposals of the head, adopts the division's development strategy, proposes a head and establishes working groups and committees within the division.

The DC works in sessions. Sessions are prepared, convened and presided by the head, or in his absence, by the deputy head.

<u>Head of Department/Clinic</u> organizes the work of a department/clinic, pursues development, personnel and financial policies and takes care of teaching, scientific and professional work of a department/clinic. The head has a duty to notify the members of the department/clinic of the work of the FC, the head of the Faculty and the DC, and/or the Clinic council (CCo). The head reports to the head of a division, the Dean and the FC.

<u>Teaching Staff of Departments/Clinics</u> consists of all employees of a department/clinic holding scientificeducational, scientific, associate and professional titles. The teaching staff discusses all educational, scientific and professional issues relating to the activites of a department/clinic.

At the beginning of each academic year, the FC, on the recommendation of the Vice-Dean in charge appoints the head and deputy head of a year for the current year from among employees with scientific-educational titles and teaching subjects specific for a particular year of study.

The main coordinator between students, teachers and the Faculty administration is the *Head of the Registry:*

- coordinates the work of the Registry;
- makes suggestions to promote the organization of the Registry;
- works with the Dean, Vice-Dean for education, secretary and heads of organizational units with regard to graduate teaching;
- proposes measures to improve the conditions and efficacy of study;
- drafts proposal of schedule of lectures, seminars, exercises, practical fieldwork, etc.;
- participates in the development of curriculum;
- keeps track of regulations and information in the field of teaching;
- enrols students and deletes students' names from the register and confirms semesters;
- prepares reports on completed enrollment, conditions and modes of study, etc.;
- performs administrative tasks related to the recognition of exams and transfer of students from other faculties;
- provides information to candidates for admission and to students;
- prepares materials for the Committee's meetings;
- performs tasks related to the printing of diplomas, organization of graduation ceremonies, etc.;
- performs other duties as requested by the Dean, Vice-Dean for education and secretary;
- reports to the Dean and Vice-Dean for education.

Describe the pedagogical approach of the institution. In particular, describe the use of newer approaches, such as problem-based learning, interactive computer-assisted learning, etc.

In most subjects, new information and communication technologies (hereinafter: ICT) have become an integral part of the educational process. Computers, the Internet, multimedia, CD, DVD, have been used effectively in planning, implementation and evaluation of the teaching process. The number of computer-assisted aids for teaching has considerably increased in recent years. This primarily refers to PDF versions of textbooks, Power Point presentations, scanned manuscripts, various simulations and animation, audio and video lectures, tests, exercises, etc. The Faculty has a brand-new lecture hall with the option of telecommunication. Videoconferencing, used to communicate with other institutions (eg. Ministries, center in charge of organizing school-leaving exams, scientific conferences, etc.), is one of the common forms of teleconferencing at the Faculty. More remote users can see and hear each other in real time using multimedia-equipped computers connected to the network.

Systematic implementation of ICT and methods, such as e-learning, is certainly an example of introducing significant changes to the system of education at our Faculty. On the basis of the Strategy of e-learning at the UNIZG, the Faculty began intensive preparations for the implementation of e-learning in teaching in 2008. Such extensive changes are related to the improvement of the quality of the educational process or outcomes of education, or the inevitable adjustment of the educational system or an institution to the current needs of society, employers and students.

Today, several levels or forms of e-learning can be distinguished at the Faculty: a) application of elementary initial ICT tools in the classic form of teaching (face-to-face or F2F); b) mixed forms of teaching (*blended, mixed mode or hybrid*) with a combination of classroom teaching and ICT- assisted teaching;

Undoubtedly, our most important project is systematic training in the use use of e-learning technologies. Through a series of two-day interactive workshops, teachers acquire competences for independent work in the e-environment (LMS). Currently, the entire first year of study and a large number of subjects in senior years (regular subjects and most electives) are active in LMS. In most preclinical subjects, classical teaching is integrated with the e-learning system LMS and most of the courses apply technology which reaches the second of three possible levels. The second level includes (lectures, seminars, and exercises) forums with information (general information, results of preliminary exams, assignments).

The Faculty has so far repeatedly provided teacher training, software testing and continuous professional training on a variety of occasions (courses for LMS, statistical programs, work in VEF protocol, keeping records of teaching, etc).

All students have an equal opportunity to access IT equipment, while Internet access is provided in the library lobby. Other computers in the hallways may be used only to access *studomat*. Students can open their user accounts through the server of the Croatian academic and research network CARNet, which allows them access to the Internet outside the Faculty at the best price. It is possible to use network services via CARNet in two ways: from member institutions connected to CARNet or individually via CARNet modem inputs (CMU). All students have the right to use it. It is possible to obtain an e-mail address through faculty servers, which would look like this: <u>address@vef.hr</u>

An Intranet is a system that provides internal access to digital documents, related to teaching, for students. It differs from the public web in that the published documents are not visible to the general public, but only to authorized users (students and the Faculty employees). For students, it mainly means that published materials related to the courses they have enrolled in during an academic year will be visible. The Intranet of the FMVUZ is accessed at: <u>http://www//vef.unizg.hr</u>.

To access the intranet, a user account of the CARNet service AAI@Edu.Hr is used. In order to obtain access data in the AAI@Edu.hr system, you need to contact the Department of Informatics of the FMVUZ. The email address is: <u>webinfo@vef.hr</u>. A wireless Internet connection is available within the Faculty.

In order to provide students with full access to computing resources and the Internet, the Faculty has four computer labs, including a total of 71 computers and additional computers in the Central Library (8 computers).

Indicate the extent to which course notes are used to supplement or substitute the use of standard veterinary textbooks.

Each department/clinic/chair and every teacher has access to the website, which serves as an intranet, where it is possible to transfer notes and other resources for students. In addition, some disciplines have their own websites. Access to web-based resources is free of charge. Each academic year, all teachers publish a list of obligatory and recommended reading materials in their syllabi. Obligatory reading materials are often available in multiple copies in the Faculty library, and for some subjects reading materials can be found in the Department and clinic libraries. Most teachers warn students not to use notes as a replacement for standard veterinary textbooks and invite them to use veterinary textbooks when preparing for exams. Information provided by the central library shows that textbooks and obligatory reading materials are regularly borrowed and that the library facilitates the normal flow and use of books. However, regardless of the information provided on obligatory reading materials, we cannot deny that lecture notes and power-point presentations still constitute a very popular source of information for students.

Describe (if applicable) any established or contractual arrangements that support undergraduate teaching between the Faculty and outside bodies, e.g. farms, breeding centres, practitioners, state veterinaryservices, factories/processing plants, outside laboratories, etc. Briefly describe how these arrangements work out in practice in terms of the contact this provides for all students or for selected students.

The FMVUZ, through contracts and agreements on teaching and research activities, regularly pays visits to veterinary organizations and other institutions already mentioned in Chapter 4 Section 4.1.4. and Annex 1 of the present chapter. Preparations for the implementation of obligatory extramural work have been extensive and thorough, and included the proper selection and training of professional mentors from institutions that participate in teaching and the preparation of handbooks, brochures and other supporting documents for the successful implementation of teaching in contracted institutions. All students who enrol in the FMVUZ are required to participate in practical training as prescribed by the study programme. Students attended obligatory extramural classes for the first time in academic year 2010/11 and it was related to obligatory subjects from the study programme CFW (180 hours per student) and PCW (120 hours per student). All classes were held according to the planned study programme, to the satisfaction of all parties.

Obligatory extramural work, which is included in a number of different subjects, is conducted in veterinary organizations and institutions, and organizations of various types of breeding and production, as follows:

- AMC for a period of 120 hours per student in small groups (up to 4 students), which is mandatory for all students, is ensured and conducted by Faculty teachers (during rotation cycles in the subject AMC). 13 agreements have been signed in total with veterinary institutions and one pig farm. Detailed data are presented in Chapter 4, Section 4.1.3 within the text on additional information on the study programme and Annex 1 of the present chapter);
- Within subject CFW in a given period, obligatory extramural practical work for a period of 180 hours per student, is conducted by Faculty teachers and veterinary practitioners (professional mentors).
 37 additional agreements have been signed in total with veterinary institutions. Detailed data are presented in Chapter 4, Section 4.1.3 and Annex 1 of the present chapter);
- For subject PCW, obligatory extramural work for a period of 84 hours per student. Two (2) agreements have been signed with one Institute and one Ministry. Detailed data are presented in Chapter 4, Section 4.1.3 and Annex 1 of the present chapter;
- For subject HH, the Faculty has signed agreements with four (4) dairy farms. Detailed data are presented in Chapter 4, Section 4.1.3 and Annex 1 of the present chapter.
- For the subject Hygiene and Food Technology, agreements have been signed with four (4) meat industries, two (2) dairies and one (1) company for producing honey. Detailed data are presented in Chapters 4, Section 4.1.4 and 4.1.5 and Annex 1 of the present chapter.
- For subjects in the field of animal production (livestock, crop production, veterinary hygiene and nutrition) the Faculty has signed contracts with one (1) public institution, (1) feed mill, one (1) institution for crop production, one (1) artificial insemination center, one (1) dairy farm, one (1) beef cattle farm, one (1) family farm and one (1) factory for the disposal and thermal processing of animal by-products. Detailed data are presented in Section 4.1.3 and Section 4.1.4 and Annex 1 of the present chapter.
- For subjects in the field of preclinics, the Faculty has signed contracts with three (3) public institutions, one (1) reproduction center, one (1) HVI, one (1) beef cattle farm, three (3) family farms which are related to training in fish-farming and beekeeping. Detailed data are presented in Section 4.1.3 and Section 4.1.4 and Annex 1 of the present chapter.
- For subjects relating to certain orientation programs, the Faculty has signed agreements with two (2) facilities for production of day-old chicks, feed and poultry, two (2) horse farms, (1) family farm Section 4.1.4 and Annex 1 of the present chapter.

Main contracted protocols have been signed with a number of veterinary organizations and institutions, local meat industries, cattle farms, dairy farms, poultry hatcheries, fish-farming, beekeeping farms, etc. In this way, possibilities have been provided for practical training in major professional areas (detailed data are presented in Section 4.1.3, 4.1.4, 4.1.5 and Annex 1 to Chapter 5). Accompanied by veterinarian practitioners and the Faculty teachers, students gain experience in matters relating to public health, official controls and inspections on the premises. They also participate in the control of animal feed and livestock products and veterinary medications and their residues, etc.

The competent head of a department/clinic has appointed contact persons responsible for the implementation of teaching activities in a contracted veterinary organization or other institution. All these activities and the required goals related to obligatory subjects – PCW and CFW - are published in the Handbook for PCW and CFW, which is revised and harmonized every academic year. The list of contact persons for each planned obligatory extramural activity is published on the Faculty's website.

As of academic year 2012/13, all students have the opportunity to acquire practical clinical experience on a pig farm (Dubravica), which is approximately 40 km away from the Faculty. They are also able to gain practical experience in a number of clinical and health activities in the herd under the supervision of the Faculty teachers.

Additional agreements on mutual cooperation in other fields of teaching activities have been signed with various institutions from broad thematic areas. These agreements mostly refer to broad thematic areas (eg. interfaculty cooperation on e-learning, the Ruđer Bošković Institute and other faculties in Croatia and from abroad).

Faculty of Medicine, Faculty of Dental Medicine and Faculty of Pharmacy and Biochemistry; Agreement on cooperation on e-learning to promote organization, improvement and coordination of e-learning (Document: class 030-03/09-31/1). Ruđer Bošković Institute, Bijenečka cesta 54, PP 180, 10000 Zagreb, Croatia. tel.01-456-11-11, Fax 01 468 00 84 PR: +385 (0)1 4571-269 / mail:info@irb.hr

Additional agreements aimed at practical training of students have been stipulated with different establishments. They are listed in Annex 1 of the present chapter, assembled for broad thematic areas. A summary is provided as follows:

THEMATIC AREAS	NUMBER OF AGREEMENTS
ZOO AND NATURE PARKS	4
FARMS	11
FEED	3
BEEKEEPING FARM	4
AQUACULTURE	3
FOOD TECHNOLOGY AND FOOD SAFETY (Veterinary Public Health; Food Hygiene and Inspection; Animal Health, Hygiene and Control of Animal Breeding, Animal Production and byProducts)	9
HORSE BREEDING (BREEDERS)	5
VETERINARY INSTITUTES	3
MINISTRIES	2
FACULTIES IN CROATIA	6
FACULTIES OF VETERINARY MEDICINE OUTSIDE CROATIA	5
COLLEGES OF AGRICULTURE	2
RESEARCH CENTRES	2
VETERINARY ORGANIZATIONS	50
TOTAL	109

Describe the general learning objectives underlying the veterinary curriculum and how they are attained.

At the national level, the FMVUZ has the largest and the longest experience and the most academic programs at all levels of veterinary education based on the principles of the Bologna process. According to a scheduled IUGSVM programme, general learning objectives are focused on providing a scientific basis and theoretical-practical training related to the veterinary profession. General learning outcomes are developed through teaching lessons scheduled for theoretical lectures, seminars, practical demonstrations and activities in small groups that are conducted in the laboratories and clinics of the Faculty, as well as during obligatory extramural work in veterinary organizations, on family farms, breeding farms, slaughterhouses, farms, nature parks, and the zoo. Special attention is also paid to students' self-directed learning hours.

Mechanisms for monitoring and quality assurance used to achieve general objectives of the curriculum are regulated by the Faculty documents (*the Faculty Statute, Regulations on Integrated Undergraduate and Graduate Studies, Regulations on Postgraduate Studies and Regulations on Doctoral Studies at the Faculty of Veterinary Medicine in Zagreb*) in which specific characteristics of educational objectives at various levels are clearly indicated.

In the 2008/2009 academic year, an Information package, that substantially defined catalogues of all subjects, was developed and adopted by the FC. Then, in the same academic year, the *Catalogue of Knowledge and Skills for all Core Subjects and Electives,* with a detailed list of knowledge and skills with proficiency levels which are an essential prerequisite for defining learning outcomes, was developed and adopted. Immediately following the completion of the catalogue of knowledge, work began on the formulation of *Learning Outcomes* for each subject included in the current study program at the FMVUZ.

The current study programme at the Faculty is based on the provisions of the *Act on Regulated Professions and Recognition of Foreign Professional Qualifications*. Specifically, recommendations set out in Article 44 are applied, so that the training of doctors of veterinary medicine can guarantee that a person has acquired those **knowledge and skills**.

Heads of courses have described the values that students should adopt after the completion of the entire study program through **the educational goals**, **learning outcomes and tasks**, which refer to the activities that a student will know how to perform after successful completion of the program of a subject *at a level acceptable to society*.

We shall outline the outcomes of the general learning objectives and competences listed in the Diploma Supplement (SD) of the FMVUZ:

Upon completion of the study, students will have acquired the following competences:

(a) Knowledge and understanding

- of the science underlying the activities of veterinary medicine;
- of the structure and function of animal health and reproduction;
- of modern methods in molecular disease diagnostics;
- of the causes, nature, history, effects, diagnosis, treatment and prevention of animal diseases;
- including special knowledge of infectious diseases and zoonoses;
- of key aspects and concepts of preventive veterinary medicine that involve selection and breeding of healthy and resistant animals in production, defining hygiene conditions for keeping animals, recognizing certain modes of behaviour and monitoring basic indicators of animal welfare;
- of the design of management plans, farming technology and selection of activities and procedures with killed game;

- of biology and basics of cultivation of aquatic organisms and useful insects, and procedures to preserve their health;
- of hygiene and technology involved in the production, manufacture and placing into circulation food products of animal origin intended for human consumption;
- of laws, regulations and other administrative provisions relating to veterinary medicine, animal husbandry, hunting, food and protection of animals and environment;

(b) Application and analysis

- treatment of animals, performing basic surgical procedures and other clinical procedures on animals;
- the ability to connect production technology, the composition and hygiene of animal feed with their health, proposing a plan of feeding animals in certain physiological and diseased states, and production periods;
- the ability to apply acquired knowledge on the protection of animals in terms of veterinary protection of the environment during veterinary activities;
- the ability to select appropriate analytical methods in veterinary laboratory diagnostics;
- the ability to search reading materials, databases and other sources of information;
- the ability to design and conduct experiments in the field of veterinary medicine;
- the ability to display and interpret results and draw conclusions;
- the ability to use appropriate laboratory equipment and critical analysis of the laboratory results

(c) Practical skills

- adequate clinical and other practical experience under appropriate supervision;
- selection and application of appropriate scientific principles, methods and diagnostic tools in animal production and biotechnology, veterinary public health, and preclinical and clinical veterinary medicine;
- the ability to combine theoretical knowledge and practical skills in solving technical problems in the field of veterinary medicine;
- an understanding of applied techniques and diagnostic procedures in veterinary medicine.

(d) Complementary skills

- the ability of effective independent and team work and presentation of work results verbally and in writing;
- an awareness of health, safety and regulatory issues, and the responsibilities of veterinary services, an awareness of the social and environmental context of veterinary solutions, and compliance with and enforcement of professional ethics, accountability and standards in veterinary medicine;
- veterinary-livestock education;
- the need and willingness to engage in continuing education.

Describe how the Faculty collects the data required to ensure students are equipped with these Day-One skills (evidence of learning).

Providing strong evidence that students, before they graduate, are introduced to "Day-One skills" listed in Annex IV, EAEVE, SOP is obviously an extremely difficult task. The Faculty teachers are aware of the required standards and are trying to adjust their syllabus, teaching techniques, and examination methods. Students have to meet certain criteria of assessment (attendance at lectures, seminars and exercises, active participation in exercises, continuous assessment of knowledge) to be able to take the final exam and obtain a final grade. In addition to this, students have to obtain a positive grade in interim exams (colloquiums) and fulfil obligatory practical training with 100% attendance (see Chapter 4 Section 4.1.3), and prepared and defended the Diploma work (Final Graduation Thesis) in an appropriate manner. At the same time, when the current curriculum was

being implemented, the Faculty (after the abolition of one year compulsory veterinary practice and final practical exam) adopted a detailed document listing of minimum practical competences. Making this document available is a significant step by the Faculty towards providing accurate evidence of learning for all required skills. It should be noted that List of MPC is already being used by students as a basis for fulfilling their PWLs (Practical Work Logs) and reports on the completion of the entire obligatory practical work.

Evaluation of student satisfaction gives some insight into the quality of work, but we can gain a proper answer through an internal or external assessment of student knowledge. In this sense, achievement of learning objectives, exam results, credits and attendance at lectures provide a good insight into the results of the educational process (internally). This is further supplemented by the results achieved on the international level of exchange and feedback, in order to determine the real level of actual knowledge, by external and objective evaluation. Last but not least, one element in the external evaluation of the achievements of the educational process will come from the assessment of the employers of our students through the continuous monitoring run the CVC (Croatian Veterinary Chamber).

5.1.2 THE TEACHING ENVIRONMENT

Describe the available staff development facilities, particularly in relation to teaching skills.

Preliminary activities have been undertaken and, for this purpose, an agreement on the implementation of a development project of the *Centre of Excellence of Veterinary Surgery* has been signed. The objective of the project is to develop a *Centre of Excellence of Veterinary Surgery*, which will be positioned as a regional centre of veterinary medicine, by investing in interior space and modern diagnostic equipment, within the FMVUZ. During the first phase, the FMVUZ will purchase equipment for preoperative examination, diagnostics and preparation, equipment for anesthesia, orthopaedic surgeries and ophthalmology, and equipment for operating hall and postoperative care. Funds for the implementation of the development project of the Centre were secured in the budget for 2009 of the City of Zagreb.

Describe the available systems for rewarding teaching excellence (e.g., accelerated promotion, prizes, etc).

Rewards for excellence in teaching and scholarly work are available at the state level. They are supported by the Scientific Activity and Higher Education Act, which was adopted by the Croatian Parliament at the session held on 2003. Pursuant to Article 95, by a special decision of the expert committee of a higher education institution (with a detailed explanation of excellence) and with the consent of employees, higher posts for promotion in the scientific-educational profession may be advertised even one year before the expiry of the term for which an employee has been selected, but not before the expiry of three years from the previous selection. That is to say, candidates are selected to a scientific-educational post for a five-year term and a candidate may be selected to the post after three years because of his/her excellence. The selection of teachers is conducted in accordance with the Scientific Activity and Higher Education Act ("Official Gazette" 123/03, 105/04, 174/04, 46/07), *Regulations on the requirements for selection for scientific titles* ("Official Gazette" 84/05), *Decision on the required conditions for the evaluation of teaching and professional activities in the selection procedure for scientific-educational titles* ("Official Gazette" 106/06), *Decision on Special Requirements of the FMVUZ and the Statute of the Faculty of Veterinary Medicine and the Statute of the University of Zagreb*.

Describe other measures taken to improve the quality of teaching and of learning opportunities.

A series of courses for the implementation of the Bologna process within the TEMPUS project have been organized at the UNIZG. Training courses have also been held for the purpose of computerization of monitoring of teaching, development of learning objectives, examination and implementation of a new system of continuous monitoring of students' activities during lectures.

The exchange of teachers and associates with other institutions from Croatia and abroad is visible through active cooperation in the exchange of invited lecturers. Twenty-two individual visits of teachers of the FMVUZ, to related foreign institutions (data available on the University's website <u>http://medjunarodna.unizg.</u> <u>hr/</u>) as guest lecturers have been registered through the Office for International Cooperation of the UNIZG.

Training of teaching and non-teaching staff has been conducted through the introduction of the Information System of Higher Education Institutions (ISVU). This has facilitated administrative tasks related to continuous assessment, conducting surveys and compiling lists of accomplishments.

In recent years, there has been better utilization of IT and telecommunication opportunities that the Large Hall provides (*e-learning*, distance learning, video conferencing, on-line courses). In this way, the conditions for modern forms of teaching, in which students are not passive listeners but motivated and active participants have been provided.

In order to encourage the use of new teaching methods (eg. *e-learning*), introductory courses on using e-learning platforms for the teaching staff have recently been organized at the Faculty.

5.1.3 THE EXAMINATION SYSTEM

Is there a central examination policy for the Faculty as a whole? If 'yes', by whom is it decided?

Describe the examination system of the Faculty, in particular:

• Is there a central examination policy for theFaculty as a whole? If 'yes', by whom is it decided?

Are there special periods (without teaching) during the year for examinations?

• What form(s) of examination are used (writtenpapers, multiple-choice questions, oral, practical, Clinical examination, continuous assessment, etc.)?

Is use made of external examiners?

How many retakes of an examination are allowed?

• Do students have to pass the examination within a certain time?

Do students have to pass an examination before they can start other courses?

Criteria, rules and procedures of assessment of knowledge and evaluation of students are defined by:

- The Regulations on Undergraduate and Graduate Study of the Faculty of Veterinary Medicine, University of Zagreb (2008);
- The Act on Quality Assurance in Science and Higher Education and the Regulations on the Quality Assurance System at the University of Zagreb.

The assessment system at the Faculty is regulated by the *Statute of the University of Zagreb* (Article 71). In accordance with the document *European Standards and Guidelines for Quality Assurance in Higher Education*

(ESG), the decision on a uniform implementation of the system of grading students at the FVMUZ, which has been consistently applied since then, was adopted at the FC session in 2009 (Document: Class: 640-01 / 09-273/1 Reg.no.:61-017139-09-3). According to this central grading system, students' attendance is registered by evidenting of all kind of students' activities and is assessed and evaluated throughout the all forms of teaching and by the final exam. During teaching process a student can achieve up to 60% of the grade, and up to 40% of the grade can be achieved at the final exam. At the Faculty, student achievement in each subject is evaluated and assessed using the ECTS and the numerical system (described below, in the same paragraph). Due to the uniform implementation of the adopted decision on the implementation of the grading system, mechanisms of monitoring and quality assurance in this area are as follows:

- For each study program, methods of monitoring and assessing students are anticipated and published (in the process of approval of the course syllabus);
- Criteria, procedures and rules of assessment are publicly published for each subject;
- Testing is performed by people who understand the role of assessment in the progression of students towards acquiring knowledge and skills related to their qualifications;
- Students are provided with timely feedback on the results they achieved in the exam or a part of the exam. The feedback is given orally, in writing or by e-mail, in accordance with the regulations on the protection of personal data;
- Procedures on how to appeal exam results are defined. These procedures have to be carried out in accordance with the Regulations on the Undergraduate and Graduate Study Programs.

A student's knowledge is tested and evaluated during the teaching period, and the final grade is determined after the final exam (articles 49 to 55 of the *Regulations*).

The central grading system at the FMVUZ

Monitoring and assessment of the knowledge, skills and competences of students in each subject will be conducted through scoring of different categories (evaluation elements), and those are:

- attendance and activities in differenct forms of teaching (lectures, exercises and seminars),
- continuous assessment (preliminary exam and gaining credits from knowledge checks)
- and a final exam.

The implementation of such a system of monitoring students in all forms of teaching ultimately results in an increased number of students passing the exams.

There are two types of assessment at the Faculty:

- **Preliminary exams** (interim exams /colloquiums) are organized during teaching periods to check knowledge of part of the relevant subject's material;
- **Final exams** assess knowledge of the overall material (learning outcomes) established by the study program.

Final exam

The final grade for each subject is formed by combining continuous assessment and a final exam. It is determined on the basis of the number of points acquired during classes and from the final exam.

During all forms of teaching, the following is scored:

- Students' attendance,
- Students' activities in classes (participation in discussions, written preparation for work in classes, practical work, e-learning, etc.), as set forth by study program,
- Colloquiums which are used to keep track of students' adopting of subject matter and acquiring the required knowledge.

Criteria for forming the grade and the method of scoring in a subject are determined by the subject syllabus. The credit accumulation model has been implemented within obligatory subjects & obligatory subjects related to track. In this model, students earn credits during the teaching process through different categories that have a minimum and maximum value (see Table below).

Table: Example of grading system for the study program subjects (according to models I, II, III and IV) on the basis of the Decision of the extended Faculty Council of 18 June 2008.

Grading - Model I: for subjects including lectures, seminars and exercises as forms of teaching

Types of activities	Minimum number of credits	Maximum number of credits
Class attendance	3	6
Seminar attendance	4	6
Exercises attendance	4	6
Activities during seminars and exercises	5	10
Continuous assessment	20	32
Final exam	24	40
Total	60	100

Grading - Model II: for subjects including only seminars as a form of teaching

Types of activities	Minimum number of credits	Maximum number of credits
Seminar attendance	11	18
Activities during seminars	5	10
Continuous assessment	20	32
Final exam	24	40
Total	60	100

Grading - Model III: for subjects including only lectures and exercises as forms of teaching

Types of activities	Minimum number of credits	Maximum number of credits
Lecture attendance	3	6
Exercises attendance	8	12
Activities during practical work	5	10
Continuous assessment	20	32
Final exam	24	40
Total	60	100

Grading - Model IV: for subjects including only practical work as a form of teaching

Types of activities	Minimum number of credits	Maximum number of credits
Exercises attendance	11	18
Activities during exercises	5	10
Continuous assessment	20	32
Final exam	24	40
Total	60	100

For grading models I to III the following applies:

Credits	Grade
do 59	1 (F)
60-76	2 (E, D)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Description of grade allocation

The highest total number of credits that can be acquired in the subject is 100. Students are expected to attend classes regularly, and 3-6 credits are allocated for attendance. Other activities are graded as follows: attendance of exercises: 8 to 12 credits; seminar attendance 4 to 6 credits; active participation in exercises 4 to 6 credits, continuous assessment: 20-32 credits, and final exam: 24 to 40 credits. In order to sit for the final exam, a student has to gain a minimum of 16 credits from attendance and active participation during classes and 20 credits from continuous assessment. The final grade for the subject in question is expressed quantitatively using a numerical credit value and the grade which is equivalent to numerical values from 1 to 5. To obtain a pass grade, a student has to gain at least 60 credits.

Upon adding up all credits acquired, a student is given a grade based on a comparison of his/her achievement with predetermined criteria (criteria-based evaluation) in accordance with the Statute of the University of Zagreb. Acquired credits are distributed on a predetermined scale, representing grades from 1 to 5.

A student's final exam results are expressed by the grades: excellent (5), very good (4), good (3), sufficient (2) and insufficient (1). Grades excellent (5), very good (4), good (3) and satisfactory (2) are pass grades and are entered into the student's transcript, exam entry form, the minutes of the exam and record card. The grade unsatisfactory (1) is a fail grade. This grade is entered in the exam entry form, the student's record card, the minutes of the exam and the ISVU system. The numerical grade system is compared with the ECTS grading scale as follows:

- The grade excellent (5) is equivalent to grade A on the ECTS scale, and vice versa,
- The grade very good (4) is equivalent to grade B on the ECTS scale, and vice versa,
- The grade good (3) is equivalent to grade C on the ECTS scale, and vice versa,
- The grade sufficient (2) is equivalent to grade D on the ECTS scale, while grades D and E on the ECTS scale correspond to grade satisfactory (2),
- The grade unsatisfactory(1) corresponds to grade F on the ECTS scale, while grades F and FX on the ECTS correspond to the grade unsatisfactory (1)

Are there special periods (without teaching) during the year for examinations?

The University calendar is adopted by the Senate at least six months before the beginning of the academic year and is published on its website. The University calendar contains general guidelines for the start and end of the academic year, teaching periods, exam periods, and public and university holidays. Based on the university calendar, the expert committee of a constituent adopts a calendar of teaching and exams, and publishes it on its website and notice board at least three months before the start of the academic year.

Exams are held during exam periods and terms announced at the beginning of the academic year. In cases when classes are held in cycles (rotations) or teaching in some subjects are completed before the date scheduled for exam periods, the first exam period is immediately after the completion of teaching (usually 1-2 weeks after completion).

Exam periods may be regular and special. Regular exam periods are: winter (February), summer (June / July) and autumn (September) based on the university calendar.

In each regular exam period, a teacher has to allow at least 2 (two) exam dates for each subject with a minimum interval of 14 days, and in the special exam period 30 days in accordance with Article 61 of the *Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine).*
Exam periods are determined for each subject and for the entire academic year at the beginning of the academic year. The exam schedule for each subject is published at the beginning of each academic year, on the basis of the proposal of Heads of subjects and is regulated in detail by Article 25, paragraph 2, item 7 of the *Regulations on the Integrated Undergraduate and Graduate Study Veterinary Medicine.*

A student has the right to take the exam after the completion of all forms of teaching in that subject. A student who has fulfilled all the prescribed duties set forth in the study program of the subject may take the exam. A subject teacher confirms that all the assignments of a full-time student have been fulfilled by his/her signature in the student's transcript ("*Indeks*").

The examiners are teachers determined by the syllabus or teachers who, based on the decision of the FC, are entrusted with teaching a subject or conducting exams.

A student has the right to see his/her exam documentation. A student registers for the exam or withdraws from the exam via "*Studomat*" *server(s)* using the ISVU system. A student can register for the exam no later than eight (8) days before the date of the exam. Students are provided with timely feedback on the results they achieved in the exam or part of the exam. The feedback is given orally, in writing or by e-mail, in accordance with the regulations on the protection of personal data.

Grade appeal process

A student has the right to appeal against a grade and the right to be examined by the committee (min. three members) upon the appeal. The committee shall keep minutes of the exam, and the decision on the grade is made by a majority of votes.

Oral exams are usually public, and a student and/or examiner has the right to require the presence of other students and members of the academic community (Article 53 of the Regulations). The same article states that the written exams are closed to the public. Students are duly informed of the exam results and have the possibility to see their written tests and appeal against a grade.

The teacher keeps official records of exam results in accordance with the Act, the Statute of the University and Regulations, and stores them in the archives of the Department, Clinic, Chair and the ISVU system.

What form(s) of examination are used (written papers, multiple-choice questions, oral, practical, clinical examination, continuous assessment, etc.)?

Exam subject matter and methods of conducting and grading a final exam are specified by the syllabus of each subject, and the time and exam periods are set at the beginning of each academic year.

The evaluation process of teaching and learning is based on systematic monitoring and assessing, and/ or collecting data on indicators that show how students are approaching the desired, expected objectives and tasks set in the teaching and learning process. Collection of indicators is done in different ways (orally, in writing, monitoring practical work, etc.) and the collected data serve as the basis for the control of learning objectives.

Exams may be group and individual (in one subject), and depending on the method of examination used, the following different methods may be used: only oral exam, only written exam, written exam in combination with oral exam; exam conducted by a three-member board. Oral exams or written exams are usually conducted in all required courses and constitute the most important part of the final grade.

Is use made of external examiners?

Examiners are teachers who hold scientific-eductional and educational titles. The exam committee consists of three members. At least one committee member has to be a teacher of the subject, the other is a teacher of a related subject and the third is the chair of the committee. The chair cannot be a teacher whose exam a student did not pass the last time. The Faculty uses external examiners as members of the exam committee for basic science subjects. Also, the Faculty signs agreements with external members on external cooperation within the UNIZG. So far, we have used this opportunity for biochemistry, chemistry, and physics.

How many retakes of an examination are allowed?

The number of retakes of an examination

In accordance with Article 71, paragraph 4 of the Statute of the University of Zagreb, the same exam can be taken a maximum of four times. The fourth time the exam is conducted by the exam committee. A student who does not pass the exam on the fourth attempt has to enrol in the same subject in the next academic year. The general act of the Faculty closely regulates the rights and obligations of students who re-enrol in the same subject, seminar, practical work, etc. such as compulsory attendance, the opportunity to participate in continuous assessment, seminar work, etc.

Do students have to pass the examination within a certain time?

A teacher is required to publish written exam results and results of parts of the exam by posting results via the information system of higher education institutions (*ISVU*) and/or on the notice board of an organizational unit of the subject examined. The entire exam has to be completed within 5 working days from the date of the written exam.

The exam schedule for students who have registered exams has to be published on the notice board of the organizational unit of a subject and the ISVU system at least one day before the exam. If a student for any reason cannot sit the registered exam, s/he is obliged to withdraw from the exam via *ISVU*, or in an organizational unit of a subject, at least 48 hours before the the exam.

Do students have to pass an examination before they can start other courses?

When signing up to take exams, a student has to comply with the exam schedule, that is to say a student cannot register or take exams in a subject of a higher rank without first passing the exam set as a prerequisite.

Apart from the fact that the exam must be completed within a specified time, a student has to pass exams in the order set by the study program. The decision on the exam schedule is made at the FC session, on the proposal of the Committee for Integrated Undergraduate and Graduate Study.

Student enrollment in the next academic year is completed by 30 September of the current academic year.

Students are required to enrol in the next academic year by the deadline set for enrollment. Enrollment deadlines are published in the Faculty calendar, on the notice board and on the Faculty's website. A student is eligible to enrol in the next academic year if s/he has fulfilled all obligations set forth by the credit system and the FC decisions for each academic year by the enrollment deadline.

Pursuant to the FC decision, a student gains the right to enrol in the next year of study if s/he has fulfilled all study obligations by the enrollment deadline set by the university calendar. Study obligations are

expressed in ECTS points and refer to those that students took on when enrolling in the previous year of study. The program and plan of study may be based on the enrollment of a semester. If the curriculum is modified, a student who has not earned the right to enrol in the next year, as well as a graduate student without student rights, enrols for differential subjects under the new curriculum. Graduate students without student rights have to bear the costs of the enrollment for differential subjects.

5.1.4 EVALUATION OF TEACHING AND LEARNING

Describe the method(s) used to assess the quality of teaching and learning in the Faculty.

Pursuant to Article 92 of the Statute of the University of Zagreb, which prescribes the regular monitoring of the FVMUZ permanent staff members teaching work, each semester the Office for Quality Management organizes a student survey for the evaluation of teachers in all constituents of the UNIZG. Since the 2007/08 academic year, the student survey has been also conducted on-line for all constituents through the ISVU system. All information about the procedure is available on the website: <u>http://www. unizg.hr/kvaliteta</u>.

The survey is carried out every semester prior to the end of the teaching period. Exceptionally, due to the unique character of studies, a survey may be conducted at other times on the basis of a decision by the head of a constituent. The decision has to include reasons for the survey to be carried out at some other time and should be submitted to the University. The costs of the survey shall be covered by the University.

The process consists of the following activities:

- informing students and teachers about the process,
- interviewing students (hereinafter: survey),
- processing questionnaires and delivering results,
- measures to improve quality,
- publishing of results.

The aim of the survey is the evaluation of the quality of teachers and teaching of a course attended by students. The survey covers three separate dimensions of teachers' performance or student perception of teachers' expertise in the area they teach evaluation of the quality of teaching, the attitude towards students and work motivation. The survey also includes a question in which students provide a general assessment of the teacher's performance. The survey is conducted and organized with the technical support of the Centre for Psycho-diagnostic Instruments of the Faculty of Philosophy, UNIZG, which conducts comprehensive statistical and psychometric data processing.

The Quality Control Committee, in consultation with the Vice-Dean for education, decides how and when to conduct a survey, carries out preparatory activities and ensures processing of the survey results. The Dean, Vice-Dean for education, Heads of divisions and the Quality Control Committeeare are responsible for the analysis of the survey results and undertaking measures to improve the quality of teaching.

Indicate whether the evaluation is a Faculty procedure, or one set up by individual departments, by students or by individuals.

In addition to this, student survey organized by the UNIZG as described in the previous paragraph, the Faculty can conduct its own survey in accordance with the Rector's conference decision on necessary requirements for the evaluation of teaching and professional activities in the election to scientific-educa-

tional titles of 2006. The decision states that "Candidates to be re-elected or eleced to a higher title must submit positively assessed results of institutional survey of the quality of their teaching or positively assessed results of student surveys, carried out by the institution itself." Therefore, the Faculty conducts a survey based on a request of a candidate who is to be re-elected or elected or pursuant to a request of the head of a department and/or clinic. The procedure of conducting the survey is identical to that prescribed by the University and the same questionnaires are used.

Indicate the use of external evaluators.

External valuators are not used at the moment. Every five year FVMUZ is visited by group of national experts in regular evaluation process obligatory for all Higher Education Institutions in Croatia (see Introduction, under 'The main organizational changes').

Describe the role of students in the evaluation of teaching and teachers.

It is important to emphasize that the student survey should be seen as an integral part of the evaluation of teaching. Evaluation conducted by students is just one aspect of the overall evaluation of the teaching process.

Experience and results show that the majority of teachers achieve satisfactory grades and, based on individual results, it is reasonable to point out extremely low and extremely high grades (with all the methodological limitations in conducting the survey). It is important to analyze the reasons that led to low grading and plan activities that may lead to improvements in the quality of poorly graded teaching elements.

Describe the follow-up given to the evaluation.

Experiences of multiple evaluation show that it is useful to analyze the trend of changes over time, in which process grades for most teachers are generally stable. Pursuant to the decision of the Quality Control Committee, teachers' individual results are confidential, and are only available to the teacher and the head (Dean) of the University constituent. The Head of a constituent may provide insight into the individual results to those responsible for teaching (the Head of Division/ Department or Chair).

Based on the reports, the Head of a constituent is obliged to meet with the following teachers:

- those who are among the ten percent worst ranked teachers,
- those who received an average numerical grade of less than two in some questions,
- those who are, based on comments from the questionnaire, suspected of the possibility of a gross violation of common ethical standards.

5.1.5 STUDENT WELFARE

Describe any measures taken to protect students from zoonoses (e.g. rabies) and physical hazards.

The Ministry of Health and Welfare approved the pre-exposure rabies vaccination for students and staff members of the Clinics of the FVMUZ, and purchased 1 000 doses of rabies vaccines which cost was covered by the Croatian Institute for Health Insurance. The vaccination is carring out periodically for all FVMUZC staff members and students from third year of study, according to the schedule.

Information and education on the risks arising from work relating to specific activities in the laboratory, dissection facilities, slaughterhouses, teaching on farms, breeding farms, an AMC and all facilities where such activities are carried out, will be provided by teachers who coordinate teaching groups before teaching in the abovementioned facilities.

There are posters containing information on risks and instructions on measures to be taken in case of risks in each facility used for practical work in laboratories.

Personal protective equipment is provided and used where necessary. The Faculty provides goggles for work in the laboratory and dissection hall for each student.

Since 2010, in order to be informed and educated on issues relating to safety at work, students have been provided with all information about future risks and chemical and biological risks associated with laboratory activities during the introductory class, immediately after admission to the Faculty.

We have prepared appropriate instructions indicating the need for safety at work for practical activities in veterinary organizations (extramural work).

Specific and preventive health care program for all full-time students:

- *Medical examination in the first year of study.* This is undertaken to check health, gain insights into habits, behaviour and adjustment to the study and to determine health risks. The medical examination includes a physical examination (thyroid, breasts, heart, locomotor system, external male genitals, visual acuity, colour vision, RR, TV, TT, ITM), health (personal and family) and social history. The mandatory part of this medical examination is the survey of habits (diet, physical activity, smoking, alcohol, drugs) and sexual behaviour.
- **Examination prior to admission to the hall of residence.** The examination is conducted to determine the health risks of staying in halls of residence under the Act on protection of the Population against Infectious Diseases. It consists of health (personal and family) and social history specifically for tuberculosis and other infectious diseases.
- **Teamwork with students with disabilities for the physical education course.** At the beginning of each semester, the competent Faculty doctor, in cooperation with teachers of physical education, plans a physical education program for students with health problems.
- **Counselling.** The purpose of counselling is to assist students in dealing with the most important and most common problems related to: faculty adjustment, learning problems, reproductive health (sexually transmitted diseases, pregnancy and family planning), chronic health problems, drug abuse and other forms of addictions.

Targeted medical examinations and issuing of doctors' notes at the request of students:

- To determine whether there are health reasons which would justify freezing the students' studies;
- To determine whether there is any health reason which would justify requesting accommodation in a single room in dormitory.

Describe the facilities (not related to the teaching programme) which the establishment provides for students.

The Student Office (SO) was founded in the 2010/11academic year. One of its tasks is to promote, monitor and protect the rights and interests of the students of the FMVUZ. The SO provides advisory services from the day students apply to the Faculty to graduation day. The SO publishes printed materials for better orientation of students at the Faculty and an example flyer relating to the psychological help the Student office provides is given below.

Mentoring

The applicable Regulations define the participation of teachers and assistants in the mentoring system, which has been implemented at the FMVUZ since the 2010/11 academic year. The mentoring system has been introduced from the first year of study. In the first year of study, freshmen are divided into smaller groups (of approximately 2 students). At the beginning of classes, a mentor is required to provide his/her students with the basic instructions for the study, and during the year s/ he will be at their disposal for questions and advice in connection with problems they cannot solve on their own or with the help of the student services. Students are required to report to their mentors on set dates.

- In addition to mentoring of freshmen, mentors have been representing the FMVUZ at the University Fair for a number of years now. There, mentors meet future freshmen and help them decide to enrol in the FMVUZ by explaining what to expect once they start studying.
- During their studies, the Registry, whose main mission is to support the organization of teaching activities and services, is open to students during working hours.
- Among our noteworthy initiatives, we should mention the promotion of the musical and artistic activities of the string orchestra and newly formed Vet Choir, which also include students of the Faculty.
- There are also sports activities organized by the Department of Physical Education. However, the Faculty also tries to meet the needs of student-athletes in connection with the organization of teaching during (European or world) championships.
- Students organize sports competitions, international student exchanges, etc. within the student associations the *International Students Association* (IVSA) and EQUUS.
- At the Faculty, there is a restaurant for students (Student Center) offering dishes at discounted and affordable prices for students.
- The main building of the Faculty houses newly renovated facilities where students can spend the whole day or use them for their own organizational needs. Student associations also use these facilities.
- Coffee, beverage and snack vending machines are available in some buildings of the Faculty.
- Students who participate in night duties in clinics can use lounges.
- Currently, there are no students enrolled with special needs at the Faculty. However, we do care about such students and that is expressed through the inclusion of a representative of our teachers and students in the university bodies.

Student Identity Card (X-ica)

The *iksica* (*X-ica*) is the identification card for full-time students of the UNIZG, which allows them to exercise their rights. *IKS* is an abbreviation of *identifikacijska kartica studenata* (the student identification card). It is used to prove student status so that students can use student privileges, such as subsidized food, public transport preferential rates and lower prices in some public institutions.

Exchange students obtained the *iksica* through the Office of International Cooperation of the FMVUZ and the Ministry (MZOS). Students coming to Zagreb via CEEPUS network receive the *iksica* upon arrival. Other students may have to wait for up to two weeks. Foreign students arriving in Zagreb on their own or within an exchange program at the Faculty level also receive *iksica*. However, these students are not eligible for subsidized meals in the student restaurants, but the *iksica* serves primarily as an identification document.

Lending identification cards to other students is not allowed. Students must return their identification cards after their student rights have expired or upon the request of the publisher. Loss of the card must be reported to the student registry.

Subsidized meals

Exchange students must obtain approval from the Ministry (MZOS) to use the services of student restaurants that offer subsidized meals. Monthly amounts given by means of the *iksica* cannot be accumulated. They are updated every month regardless of the balance at the end of the previous month. The balance on the *iksica* can be seen at the bottom of each receipt issued for that *iksica*, on the website of the University Computing Center *SRCE* (www.cap.srce.hr) or on the X-phone 6165 876 (the *iksica* should be prepared).

Foreign students arriving in Zagreb on their own (*freemovers*) or within an exchange program (exchange students) are not eligible for subsidized meals. They pay the full price of meals in student restaurants.

Cohesion and collaboration between the Faculty staff and students of the Faculty

Cohesion and collaboration between the Faculty staff and students of the Faculty are achieved in several ways:

- Active participation of students in the Administration bodies (Faculty administration);
- Active participation of students in decisions on the curricula (student representatives in the Faculty's committees);
- Supporting students in their scientific-research activities (mentoring);
- Supporting students in international cooperation;
- Supporting students in the magazine publishing;
- Supporting students in their extracurricular activities.

Student participation in the Faculty's activities is described in the Statute of the Faculty which has been published on the Faculty website.

Describe the guidance offered by the Faculty (or its parent institution) for students with problems (social problems, study problems) as well as for future career development or job selection.

In order to ensure that all candidates with disabilities enjoy the constitutionally guaranteed right to an equal education, it is necessary to provide conditions for successful studying to all present and future students with disabilities Therefore, the UNIZG, has founded the Office for Students with Disabilities as a reference center, where students can obtain information on the spot, as well as via telephone, e-mail, flyers, brochures. The Office, through its activities, offers students direct assistance in solving specific problems that may occur during their study, and thus represents a mechanism for ensuring equal opportunities.

Helping and guiding students at the FMVUZ

The Faculty works closely with the aforementioned Office of the UNIZG, despite the fact that in recent years it has not had students with disabilities.

5.2 COMMENTS

Please give general comments about the quality of the teaching program under the above headings.

The teaching program (5.1.1)

We can say that much has been done to ensure better coordination of the teaching programs between different institutions and people involved in the teaching and extramural work. However, in order to ensure that the teaching program is successfully coordinated and communicated to the students, a certain number of external professionals and associates are needed. Minor problems of coordination in teaching can still occur, but they are now swiftly pointed out by students (usually through the student representative). Therefore, problems may be solved by the Vice-Dean for education in a short time.

Although facilities and technical means for modern teaching are available and appropriate, initiatives have been taken to improve individual teaching skills and new approaches that are more in line (than "traditional" teaching) with the philosophy of the "Bologna Declaration". As a result, problem-based teaching (one of the basic teaching methods of the new philosophy) is used less than what would be expected.

The teaching environment (5.1.2)

In general, the aforementioned data show that the recommendations of the Bologna process on testing of students' knowledge have been applied at FVMUZ. Several opportunities for improvements have been noted: a large number of subjects use two systems (models) of assessment simultaneously: continuous assessment and examinations. At the same time, preliminary exam periods should be determined in advance (as well as examination periods) per courses so that a large number of preliminary exams (colloquiums) in the same week are avoided. Organization of the assessment system is quite good, starting from the timely publication of examination schedule on the web and ISVU system, in order to avoid clashing of dates.

The examination system (5.1.3)

Undoubtedly, there are weaknesses such as large number of attempts allowed, with the possibility of transferring exams that inevitably leads to an extension of the time needed to complete the study, but solving such problems is in domain of the UNIZG.

Evaluation of teaching and learning (5.1.4)

We believe that a student survey on quality of teaching, which was established as a part of the quality control system and was aimed at evaluating the teaching process and all its participants by students, has helped teachers obtain feedback on students' understanding and perception of teaching. As students' surveys are presented to teachers, they themselves can see where problems are and can continue to take part in improving the quality of lectures, seminars and practical work, adequacy and availability of reading materials, the student-teacher relationship and conducting examinations. Also, issues identified are resolved and a breakthrough in comparison to previous years has been analysed at the FC sessions, the Dean's office meetings and other meetings. Mutual trust between the administration and students leads to solving problems. Thus, the survey gains in importance and becomes an instrument of quality assurance.

Student welfare (5.1.5)

No comments.

The examination system (5.1.6)

No comments.

5.3 SUGGESTIONS

The Faculty should promote a good atmosphere to maintain a sense of responsibility and commitment to quality teaching by the staff. Training courses for teachers of the Faculty should be organized to further promote the use of a problem-solving approach to learning. Criteria for awards for teaching excellence should be defined at the Faculty.

In the coming period, it is necessary to include other factors to evaluate the quality of teaching, such as: an assessment of course intensity, evaluation of the quality of educational outcomes (examinations), assessment of teaching organization at the level of a study year; an exit survey for graduates, a survey for graduates with practical work experience, a survey for FVMUZ staff members.

Annex 1 to Chapter 5

LIST OF AGREEMENTS BETWEEN THE FACULTY AND EXTERNAL BODIES FOR PRACTICAL TRAINING, ASSEMBLED FOR THEMATIC AREAS

Zoos and nature parks

- PUBLIC INSTITUTION ZAGREB ZOO Maksimirski perivoj bb, Zagreb, 10000, Tel.: + 3851/2302 198, fax: + 3851/2302 199, tax number (MB): 2262622, personal identification number (OIB): 69262261098 e-mail: <u>biolog.zoozg@zg.t-com.hr</u>, <u>http://www.zoo.hr/</u>
- PUBLIC INSTITUTION »MAKSIMIR« PARK FOREST MAKSIMIR Maksimirski perivoj bb, HR-10000 ZAGREB; tax number (MB): 1438174; personal identification number (OIB):78356795960 Tel.: +385 1 2320 460, fax: +385 1 2320 461 e-mail: <u>park-maksimir@park-maksimir.hr</u>, <u>http://www.park-maksimir.hr</u>
- 3. PUBLIC INSTITUTION NATURE PARK LONJSKO POLJE, PP Lonjsko polje, MB:080153947, personal identification number (OIB):1300997 tel.: +38544/672-080, 611-190, fax: +38544/606-449; e-mail: info@pp-lonjsko-polje.hr
- 4. NATIONAL PARK RISNJAK, Bijela Vodica 48, Crni Lug tel: +385 (0)51 836 133 Fax: +385 (0)51 836 116 E-mail: np-risnjak@ri.tcom.hr

Farms

- 5. FAMILY FARM "Đakula" holder: Đakula Rodoljub Bliski kut, Sjeverovac 23, Sisak PB 0502969370021 MBPG 57997. Mob: +385091 2048 169
- 6. FAMILY FARM IvicaToljan, HR 80094924, Dvoriška ulica 38, Donje Dvorišće10370 Dugo Selo
- 7. DAIRY FARM; Srednja gospodarska škola Križevci Mislava Demerca 1 48260 Križevci (Document: class 602-01/12-01/14)
- 8. BEEF CATTLE FARM Mesnice Fiolić d.o.o.,director M. Fiolić,Vukovina b.b., 10410 Velika Gorica, Tel: +38516261464, Fax: +38516261465, e-mail:mesnice@mesnice-fiolic.hr
- 9. PIG BREEDING: DUBRAVICA D.D. (pig farm) Pavla Stoosa 109, 10 293 Dubravica, tax number (MB): 03231631, personal identification number (OIB): 15249394041Tel: +38513399297
- 10. FAMILY FARM (dairy farm) Šimunčić, Pavlin Kloštar, 36 43203 Kapela JIBG: HR 60012224
- 11. FAMILY FARM LidijaBašnec, dr. med. vet., Lipička 3, Šeovica
- 12. PA-VITA d.o.o. (dairy farm) Kašinska 64, 10 360 Sesvete. Tax number (Mb): 1853635; MBS: 080496677; personal identification number (OIB): 89034440861
- 13. DAIRY FARM, Mirko Katalenić, 4325 Gudovaca, JIBG: HR 50013995
- 14. DAIRY FARM, Josip Horvat, Stanići, Kapela,
- 15. FARM FARKAŠEVAC, Brezine 50, Farkaševac, represented by Franjo Bukal
- 16. FARM, Zoran Pleško, Planinska 112, Čepelovac, 48350 Đurđevac

Feed

- 17. FEED MILL KUŠIĆ PROMET d.o.o.Psarjevo donje 61, 10380 Sv. I. Zelina, +38512069 202
- 18. CRAFT SERVICES IN CROP PRODUCTION Franjo Bukal, Brezine 50, Farkaševac, tel:012727-732; OIB 48877389815
- 19. DDL Zagreb d.o.o. Abramovićeva 11, 10000 Zagreb, represented by director Dean Laškaj, dr. med. vet.

Beekeeping farms

- 20. FAMILY FARM ŽORAT (MIBPG: 0090210) Dukovec 14, 49223, Sv. Križ Začretje.
- 21. FAMILY FARM BILEK (MIBPG 0015209) Frankopanska 82, 43500 Daruvar.
- 22. FAMILY FARM GLUMAC (MIBPG) Nikole Pavića 1, 40000 Čakovec.
- 23. MEDO FLOR d.d. Vodovodna I odvojak 7, 10253 Donji Dragonožec, HR Tel.: +385 1 62 15 056/057; Fax: +385 1 62 50 173E-mail: info@medo-flor.hr

Aquaculture

- 24. FISH-FARMING POLJANA d.d., Milan Božić, Ribnjaci bb, 43283 Kaniška Iva
- 25. GORAN SAČER, Bukov dol 13, 10 000 Zagreb
- 26. FISH-FARMING POLJANA d.d., Krešimir Drašner, Ribnjaci Poljana 43283 Kaniška Iva, Croatia

Food technology and food safety

- 27. PIK VRBOVEC MEAT INDUSTRY D.D. VRBOVEC, Vrbovec 10340 ZAGREBAČKA 148 MB : 3100928, OIB: 78909170415 Tel: +385/12794777 Fax: +385/12794704 e-mail: <u>pik-vrbovec@pik-vrbovec.hr</u>, web: <u>www.pik-vrbovec.hr</u>
- SLAUGHTERHOUSE AND MEAT PROCESSING CEROVSKI d.o.o. Ulica Pod Goljakom 21 10253 Donji Dragonožec. Tel:+385/01
 6227299; Fax: +385/16227301;OIB: 92895845170; Tax number: 1581228; E-mail:mesna-industrija-cerovski@zg.t-com.hr; www.mesna-industrija-cerovski.hr
- 29. SLAUGHTERHOUSE LORKOVIĆ, Vinski vrh 68C, Netretić, 47250 Novigrad na Dobri, MBO: 92544819 Tel: +385/47/874006; Fax: +385/47874006, E-mail: info@klaonica-lorkovic.hr
- 30. BUTCHER'S SHOP KURILOVČAN D.O.O.VELIKA MLAKA, 10408NIKOLE KRAMARIĆA 32 MB : 2428920 OIB: 68629019694 Tel: +385/16222096 e-mail: <u>kurilovcan@hotmail.com</u>
- 31. DAIRY BOHNEC, Koprivnička 17b, 42230 Ludbreg, tel: +385/42819-177.
- 32. LEDO d.d. LEDO joint stock company for production and distribution of icecream and frozen food Zagreb, Čavićeva 9; oib87955947581MB 3218821 Marijana Cavica 9; 10000 Zagreb,Telphone: +385/1 2385 666,Telefax: +385/1 2385 669,e-mail: <u>financije@ledo.hr</u> web: www.ledo.hr
- 33. VALIPILE d.o.o. lve Politea 62, 10361 Sesvetski Kraljevec Tel.: +385/1/204890, +385/1/2048900; Fax: +385/12048902, OIB:00467090373Mb:3786358;E-mail:<u>valipile@valipile.hr</u>,Web:<u>www.valipile.hr</u>
- 34. PIKO d.o.o., Volavje 54, 10450 Jastrebatsko, tax number: 0767514, MBS: 080293126 OIB: 45344216353 Tel: +385/16286464 Fax: +38516271414 Web: <u>www.piko.hr</u>
- 35. AGROPROTEINKA D.D. Strojarska cesta 11; <u>10360</u>, <u>Sesvete</u>, Croatia, registration number: 080124622, Tel. +385/12046776; Fax +385/12046774 <u>www.agroproteinka.hr</u>

Horse breeding (breeders)

- 36. CROATIAN HORSE BREEDING CENTRE The state horse farm Lipik, Lipik, Marije Terezije 27, Croatia, MBPS 2456885, OIB: 09600687051
- 37. Tel: +386/34 421 880; Fax: +385/34 421 844
- CROATIAN HORSE BREEDING CENTRE The state Lippizaner horse farm Đakovo, Đakovo, Augusta Šenoe 45, Croatia, OIB: 59493690843
- 39. Tel: +385/31 813 286; Fax: +385/31 822 530 e-mail: lipicanac@ergela-djakovo.hr
- 40. THERAPEUTIC AND RECREATIONAL RIDING ASSOCIATION "Nada Vrbovec" Address: Konak 26, 10340 Vrbovec Tax number: 02076268 Telephone: +385/12796 130 e-mail: mldakic@gmail.com
- 41. PZ Horse farm Višnjica, Višnjicabb, 33520 Slatina, represented by director Ksenija Plantak

Veterinary institutes and centres

- 42. VETERINARY INSTITUTE KRIŽEVCI branch of Croatian veterinary institute in Zagreb, Zakmardijeva10, 48260Križevci, tel. +385/48681-16
- 43. CROATIAN VETERINARY INSTITUTE, Zagreb, Address: Savska cesta 143, 10000 Zagreb OIB: 29059177553, Mb: 3274098, tel.: +385/16123666, fax: +385/16190841E-mail:<u>ured@veinst.hr</u>; web:<u>www.veinst.hr</u> (Document: class 402-08/11-357/1)
- 44. CENTRE FOR REPRODUCTION IN ANIMAL HUSBANDRY IN CROATIA D.O.O. CRSH, Bani 83, 10 010 Zagreb; MB: 3218872 OIB: 18386202945 Tel: +385/12441 411, Fax: +385/12441 027; e-mail: info@crsh.hr (Document class:402-08/10-460/1)

Ministries and Agencies

- 45. MINISTRY OF AGRICULTURE, Veterinary administration of the Republic of Croatia, Address: Ul. Planinska 2, 10000 ZagrebOIB: 76767369197, Mb: 3271005, tel.: +385/16106111, fax: +385/16109201 E-mail:morana.begac@mps.hr; www.mps. hr (Document: class 251-61/01/139-12-4)
- 46. REPUBLIC OF CROATIA, Ministry of the Interior MUP, Ulica Grada Vukovara 33, Zagreb, Tel: +38516122111
- 47. CROATIAN AGRICULTURAL AGENCY, Poljana križevačka 185, 48260 Križevci, represented by the head dr. sc. Zdravko Barać, Tel: +38548279 072 Fax: +38548693 216

Faculties in the Republic of Croatia

48. THE FACULTY OF MEDICINE, FACULTY OF DENTAL MEDICINE, AND FACULTY OF PHARMACY AND BIOCHEMISTRY Agreement on cooperation on e-learning to organize, promote and coordinate e-learning (Document: class 030-03/09-31/1).

- 49. THE FACULTY OF AGRICULTURE, UNIVERSITY OF ZAGREB, GRASSLAND CENTRE, Svetošimunska cesta 25, 10000 Zagreb, Croatia, tax number: 3283097; OIB: 76023745044 Tel. +385/1 239 3777; Fax: +385/1 231 5300 (class: 602-01/12-02/5, reg. no.: 251-71-01-12-1)
- 50. THE FACULTY OF MEDICINE, UNIVERISTY OF ZAGREB, Agreement on interfaculty cooperation, Šalata 3 10000 Zagreb Tel: 45 66 777, Telefax: (01) 456 67 01, (01) 492 00 53, URL: http://www.mef.hr e-mail: mf@mef.hr(document: class 402-08/06-258/1)
- 51. THE FACULTY OF DENTAL MEDICINE, UNIVERSITY OF ZAGREB, Agreement on interfaculty cooperation Gundulićeva 5, Telephone 01.4802.111, 01.4807.350, Fax. 01.4802.159, E-mail: dekanat@sfzg.hr, URL: http://www.sfzg.hr(Document; class: 402-08/04-174/1)
- 52. THE FACULTY OF PHARMACY AND BIOCHEMISTRY, UNIVERSITY OF ZAGREB A. Kovačića 1, 10000 Zagreb, Telephone: (+385) 01 48 18 288, Fax: (+385) 01 63 94 400, e-mail: dekanat@pharma.hr URL. http://www.pharma.hr (Document class: 402-08/10-417/1)
- 53. THE FACULTY OF AGRICULTURE, JOSIP JURAJ STROSSMAYER UNIVERSITY, kralja Petra Svačića 1d 31 000, Osijek, OIB 98816779821 (Document: class 402-08/12-608/1)
- 54. UNIVERSITY IN ZADAR, DEPARTMENT OF ECOLOGY, AGRICULTURE AND AQUACULTURE, TRG KNEZA Višeslava 9, Zadar (Document: class 402-08/12-607/1)

Faculties outside the Republic of Croatia

- 55. VETERINARSKA FAKULTETA, UNIVERZA V LJUBLJANI, 1115 Ljubljana Gerbičeva 60 tel:01 4779-1000, Agreement on participation (Dokument; klasa: 402-8/01-03/33)
- 56. FAKULTET ZA VETRINARSKA MEDICINA, UNIVERZA SV. KIRIL I METODIJE Skopje, Republic of Macedonia (Document; class: 402-8/01-350/1)
- 57. THE FACULTY OF VETERINARY MEDICINE, UNIVERSITY OF SARAJEVO, Bosnia and Herzegovina (Document; class: 402-8/08-153/1)
- 58. THE FACULTY OF VETERINARY MEDICINE, Tirana, tel.+355 4 353871 (Document; class: 130/01-o-39/1)
- 59. UNIVERSITY OF VETERINARY AND PHARMACEUTICAL SCIENCES BRNO, CZECH REPUBLIC (Document; class:402-08/09-404/1)

Colleges of agriculture

- 60. COLLEGE OF AGRICULTURE KRIŽEVCI Mislava Demerca 1 48260 Križevci E-mail: dekan@vguk.hr (Document: class 402-08/05-222/1)
- 61. POLYTECHNIC OF KARLOVAC, Department of hunting and nature protection, Trg J.J. Strossmayera 9 , 47000 Karlovac , Tel: 047/ 843-520; 522; 523 , Fax: 047/843-529 Email: lovstvo@vuka.hr

Research centres

- 62. RUĐER BOŠKOVIĆ INSTITUTE, Bijenečka cesta 54, PP 180, 10000 Zagreb, Croatia. tel. +385/14561111, Fax+385/14680084 PR: +385 (0)1 4571-269 / mail:<u>info@irb.hr</u>
- 63. HEALTH POLYTECHNIC OF ZAGREB, Mlinarska cesta 38, OIB 509526462228 (Dokument: clas 402-08/12-610/1)

Veterinary organizations

- 64. VETERINARY AMBULATORY CLINIC "JASTREBARSKO" d.o.o.Trešnjevka 61, 10450 Jastrebarsko, Croatia,MB : 3115780, OIB: 56834479467,tel: 01/6281085, fax: 01/6283579e- mail: info@vsj.hr, web: www.vsj.hr
- 65. VETERINARY CLINIC "PISAROVINA"Pisarovina bb, Pisarovina, Croatia,OIB: 56834479467, tel. +3851/6291 810e-mail: ambulanta-pisarovina@vsj.hr
- 66. VETERINARY CLINIC "VETMED" d.o.o. Stružec 59, Popovača, Croatia,tel: +385/44643-700
- 67. VETERINARY CLINIC "MAJCAN" d.o.o. Frane Krste Frankopana 38, Bjelovar, Croatia,Mb: 0952915, MBS: 010030804, OIB: 56492483135 tel: +38544/643-700; +38543/228-100
- 68. VETERINARY CLINIC "BJELOVAR" d.o.o. ROVIŠĆE S. Radića 11, 43212 Rovišće, Croatia,MB: 03308286, OIB: 72949408555, tel. +38543 / 878012
- 69. VETERINARY CLINIC "NOVA" d.o.o.Josipa Badalića 24, 10314 Križ, Croatia,tel. +38512824513
- 70. VETERINARY AMBULATORY CLINIC "VRBOVEC" d.o.o. Kolodvorska 68, 10340 Vrbovec, Croatia, MB: 3101002, OIB: 43025336094
- 71. VETERINARY AMBULATORY CLINIC "VRBOVEC" d.o.o. LONJICA Lonjica 110, 10341 Lonjica, Croatia,MB: 3101002, OIB: 43025336094, fax: +385/012791432, tel. +385/1 2724-350
- 72. VETERINARY CLINIC "VRBOVEC" d.o.o. GRADEC Gradec 95 10345 Gradec, Croatia,MB: 3101002, OIB: 43025336094, fax: +385/12791432, tel. +385/1 2797-033,

- 73. VETERINARY AMBULATORY CLINIC "VRBOVEC" d.o.o. RAKOVEC Rakovec 52,10347 Rakovec, Croatia,MB : 3101002, OIB: 43025336094, fax: +385/12791432, tel. +385/12798-040
- 74. VETERINARY CLINIC "VRBOVEČKA DUBRAVA" d.o.o.Kalnička BB,10342 Dubrava Croatia,tel: +385/1 2725-133
- 75. VETERINARY AMBULATORY CLINIC "ČAZMA" d.o.o.Milana Novačića 44, 43240 Čazma, Croatia, MB: 3031039, OIB: 15084493757, tel: +385/43771081, fax: +385/43771081e-mail: <u>veterinarska.stanica.cazma@bj.htnet.hr</u>
- 76. VETERINARY AMBULATORY CLINIC "OZALJ" d.o.o.Odvojak karlovačke ceste 110, 47280 Ozalj, Croatia,MB: 020010171, OIB: 82431984039, tel: +38547/731-142, +385/47638-317e-mail: <u>veterinarska.stanica.ozalj@ka.t-com.hr</u>
- 77. VETERINARY AMBULATORY CLINIC "KARLOVAC" d.o.o.Karlovac, Braće Gojak 52, Croatia,Mb: 3122352, MBS: 020018730, OIB: 29441204880, tel: +385/47615-401
- 78. VETERINARY AMBULATORY CLINIC "VARAŽDIN" d.o.o.Trg Ivana Perkovca 24, Varaždin, Croatia,Mb: 3015254, OIB: 41540201755,el: +385/42240122, fax: +385/42240461
- 79. VETERINARY AMBULATORY CLINIC "NAŠICE" d.o.o.Braće Radića 78, 31500 Našice, Croatia,Mb: 3120295, OIB: 33959344626, tel: +385/31613165, e-mail: veterinarska_stanica@os.htnet.hr
- 80. VETERINARY AMBULATORY CLINIC "REMETINEC" d.o.o.Brezovica, 10257, Brezovička cesta 105, Croatia,Mb: 3215385, MBS: 080094574, OIB: 95784618674, tel: +385/16538381e-mail: vet-s-remetinec@zg.htnet.hr
- 81. VETERINARY AMBULATORY CLINIC "IVANEC" d.o.o.Varaždinska 15; 42240 Ivanec, Croatia,Mb: 3125378; OIB: 13839398830, tel: +385/42781323. Fax: +385/42782011. e-mail:veterinarska.stanica.ivanec@vz.htnet.hr
- 82. VETERINARY AMBULATORY CLINIC "SAMOBOR" d.o.o.Samobor 10430, Katarine Zrinske 7, Croatia, MB: 3102807, OIB: 22260583175, tel: +385/13360171, e-mail: veterinarska-stanica-Samobor@zg.htnet.hr
- 83. VETERINARY AMBULATORY CLINIC "BJELOVAR" D.O.O.Slavonska cesta 4, 43 000 BjelovarTel.: +385/43241-017, fax: +385/43242-332veterinarska.stanica.bjel@bj.t-com.hrDirector:mr. Ivan Đureković, dr.med.vet.MB: 3308286, OIB: 72949408555
- 84. BIOINSTITUT D.O.O.R. Steinera 7, 40 000 Čakovec Tel. :+385/40391-480, fax: +385/40391-488vet.amb.ck@veterinarskacakovec.hrsasa.legen@bioinstitut.hrDirector: dr.sc.Saša Legen, dr.med.vet.MB: 3108589,OIB: 42588898414
- 85. VETERINARY CLINIC D.O.O., DRNIŠ"Brune Bušića 16, 22 320 DrnišTel.: +385/22886-180, fax: +385/22886-180vs.drnis@gmail. comDirector: Joško StojanovićMB: 3031721 ,OIB: 31167380762
- 86. VETERINARY CLINIC "VET PLUS" D.O.O.Radićeva 81 B, 47 250 Duga ResaTel/fax: +385/47849-020<u>veterinarska.ambulanta.vet.</u> plus@ka.t-com.hr Director: Vlasta Antunac, dr.med.vet.MB: 1544314, OIB: 83390366615
- 87. VETERINARY AMBULATORY CLINIC D.O.O., "DUGA RESA" Šetalište Tušmer 17, 47 250 Duga ResaTel.: +385/47849-360, fax: +385/47849-360veter@globalnet.hrDirector: Miroslav JuričekMB: 3072118,OIB: 67831760984
- 88. VETERINARY AMBULATORY CLINIC "SESVETE" d.o.o.Sesvete, 10360, Jelkovečka 2, Croatia,MB: 3342484, OIB: 85969503819, tel: +385/12006000, fax: +385/12006000 e-mail: veterinarska-stanica-sesvete@zg.htnet.hr
- 89. VETERINARY AMBULATORY CLINIC "ĐURĐEVAC" D.O.O.Malinov trg 7, 48 350 ĐurđevacTel.: +385/48 813-313, fax : +385/48812-448 ivan.forgac@kc.tel.hr Director: Ivan Forgač, dr.med.vet.MB: 3066142,OIB: 68118484726
- 90. VETERINARY AMBULATORY CLINIC "BELI MANASTIR" d.o.o.Beli Manastir, 31300, Osječka ulica 128, Croatia, MB: 3307352, OIB: 74879732075, tel: +385/31700133, fax: +385/31703165
- 91. VETERINARY CLINIC "IMOTA" D.D. 21 260 Imotski
- 92. VETERINARY CLINIC "ZOO-VET" d.o.o. Vanje Radauša 1, 23000 Zadar, Croatia,Mb:1593854, OIB:99458940655, tel/fax: +385/23214295e-mail:nzilic@globalnet.hr
- 93. VETERINARY AMBULATORY CLINIC OF THE "CITY OF ZAGREB "D.O.O.Heinzelova 68, 10 000 ZagrebTel.: +385/16040-149, fax: +385/16040-149 info@vs-grada-zagreba.hrMB: 3218864,OIB: 86813677256
- 94. VETERINARY CLINIC "VET-CENTAR" d.o.o.Stancija portun 2, 52440 Poreč, Croatia,Mb: 258373, MBS: 130039465, OIB: 40847262218, tel. +385/52 433 221, fax: +385/52 433 221, mob. +385/91 433 2214e-mail: <u>vetcentar.porec@gmail.com</u>
- 95. VETERINARY AMBULATORY CLINIC "KOPRIVNICA" D.O.O.Mihovila PavlekaMiškine 66, 48 000 KoprivnicaTel.: +385/48621-114, fax: +385/48621-800veterinarska-stanica@kc.t-com.hr director: DanimirKolmanMB: 3037827,OIB: 35631964454
- 96. VETERINARY AMBULATORY CLINIC "VIROVITICA" d.o.o.Virovitica, 33000, J.J.Strossmayera 38, Croatia ,MB: 3104486, OIB: 46027284068 , tel: +385/33728332 , fax: +385/33728335 e-mail: veterinarska-stanica@vt.htnet.hr
- 97. VETERINARY AMBULATORY CLINIC "KRIŽEVCI" D.O.O.Potočka 35, 48 260KriževciTel.:+385/48718-692, fax: +385/48718-692veterinarska.stanica.krizevci.d.o.o.@kc.t-com.hrDirector: dr.Roko Bašić, dr.med.vet.MB: 3003159,OIB: 43648705239
- 98. VETERINARY CLINIC "BENKOVAC" d.o.o. Rivine 1, 23420 Benkovac, Croatia ,Mb: 3023613, OIB:14220332177, mob: +385/098 815387, tel:+385/23 681171, fax: +385/23684018e-mail:veterinarska.stanica.d.d.benkovac@zd.t-com.hr

- 99. VETERINARY AMBULATORY CLINIC "RIJEKA" D.O.O M.Remsa 1, 51 000 RijekaTel.:+385/51320-263, fax: +385/51320-139vet. st.ri@ri.htnet.hrDirector: mr. lgor Vukelić, dr,med.vet.MB: 3320278,OIB: 02918144179
- 100. VETERINARY AMBULATORY CLINIC "VELIKA GORICA" D.O.O.Sisačka bb, 10 410 Velika GoricaTel.: +385/16221-263, fax: +385/16221-070vs-v.gorica@zg.htnet.hrDirector: mr.sc. Vladimir Žirović, dr.med.vet.MB: 3216063 ,OIB: 00782076239
- 101. VETERINARY AMBULATORY CLINIC "OSIJEK" d.o.o. Osijek, 31000, Vinovačkabb., Croatia, MB: 3025764, OIB: 83957020339, tel: +385/31275060, fax: +385/31275080
- 102. VETERINARY AMBULATORY CLINIC "ŽUPANJA" d.o.o.Veliki Kraj 18, 32270 Županja, Croatia, MBS: 030037217, OIB: 99737558645, tel:+385/032837659, fax: +385/32837659
- 103. VETERINARY AMBULATORY CLINIC "ARGUS" d.o.o.Slavonski Brod, 35000 dr. Mile Budaka 1, Croatia ,MB: 1315463, OIB: 49394524178, tel: +385/35448842, fax: +385/35448845 e-mail: argus@sb.t-com.hr, web: www.argus-sb.com
- 104. VETERINARY AMBULATORY CLINIC "PAKRAC" D.O.O.Ulica Križnog puta 8, 34 550 PakracTel.: +385/34411-019, fax: +385/34412-889, vet.st.pk@po.t-com.hrDirector: Siniša Horvat, dr.med.vet.MB: 03049809,OIB: 51405411763
- 105. VETERINARY CLINIC "OGULIN" d.o.o.OGULIN, 47300,PEŠĆENICA 8, Croatia,MB: 3200256, OIB: 64200496840 , tel: +385/47522681, fax: +385/47531973
- 106. KARAULA VETERINARY CLINIC d.o.o.Daruvar, 43500 Štefanovića Pere 6, Croatia,MB: 1413830, OIB: 87844605857, tel: +385/43331081
- 107. VETERINARY CLINIC "VET-CENTAR" D.O.O.Stancija Pontun 2, 52 440 Vrvari, PorečTel.: +385/52433-221, fax: +385/52434-560 vetcentar.porec@gmail.comDirector: Adrijan Matić, dr.med.vet.MB: 2583739,OIB: 40847262218
- 108. VETERINARY AMBULATORY CLINIC D.O.O, "POŽEGA"E. Podaupskog 4, 34 000 PožegaTel.: +385/34211-602, +385/34211-612, fax: +385/34211-624veterinarska.stanica.pozega@po.t-com.hrDirector: Ivan Devčić, dr.med.vet.MB: 3320073OIB: 89312164882
- 109. VETERINARY CLINIC "RAB" (VET-ARBA D.O.O) Supetarska Draga 10, 51 280 RabTel.: +385/51776-223, fax: +385/51776-307vetarba@ri.t-com.hrDirector: Vedran Rak, dr.med.vet.MB: 2577607,OIB: 42219408316
- 110. VETERINARY AMBULATORY CLINIC "ZLATAR-BISTRICA" d.o.o.Zlatar Bistrica, 49247 Varaždinska 2, MB:3126714, OIB: 55377057545 tel: +385/49461821, fax: +385/49461821 e-mail: veterinarska.stanica@kr.htnet.hr
- 111. LIKOMED VETERINA D.O.O.Brnaze 172, 21 230 Sinj, tel/fax: +385/21701 400vesna@likomed.hrDirector: mr. Vesna Boban, dr. med.vet.MB: 1702408,OIB: 28686451518
- 112. VETERINAR d.o.o. "PULA"Krševanova Stancija 2, Hr 52100 Pula, Croatia,MBS: 040088106, OIB: 99705846523, tel: +385/52540391
- 113. VETERINARY AMBULATORY CLINIC "ZAPREŠIĆ" D.O.O.B.J.Jelačića 77, 10 290 ZaprešićTel.: +385/13310-733, fax: +385/13310-466vet.st@zg.t-com.hrDirector: dr.sc. Vinko Medvid, dr.med.vet.MB: 3216624,OIB: 80205892543
- 114. VETERINARY AMBULATORY CLINIC ĐAKOVO d.o.o. Kralja Tomislava 33, 31400 Đakovo, OIB: 77703754353, represented by director A. Strmotić

CHAPTER 6. FACILITIES AND EQUIPMENT











Chapter 6. FACILITIES AND EQUIPMENT

6.1 FACTUAL INFORMATION

6.1.1 PREMISES IN GENERAL

Please give a general description of the site(s) and buildings occupied by the Faculty and include a map.

The Faculty of Veterinary Medicine, University of Zagreb, is located in the south-eastern part of Zagreb, at number 55 Heinzelova Street. As an integrated campus, the Faculty owns 58,783 m² of its own land while the total facility area amounts to 26,915 m² (including all floors: ground floor, first floor, second floor). The Faculty comprises 12 constituent buildings located on the campus site: the Dean's office with shared services and a part of the preclinical Departments and student premises, four buildings inter-connected with two longitudinal colonnades of buildings in which basic and preclinical Departments and Departments of the Public health and food safety division are located along with the student canteen. The remaining seven separate buildings belong to a clinical part of the Faculty: Surgery, Orthopaedics and Ophthalmology Clinic, Internal Diseases Clinic, Obstetrics and Reproduction Clinic, Clinic for Infectious Diseases with an isolation unit, Outpatient Clinic, Department of Poultry Diseases with Clinic, Department of Radiology, Ultrasound Diagnostics and Physical Therapy and Department of General Pathology and Pathological Morphology.

Instead of the old garage (No 9), the Clinic for Infectious Diseases with an isolation unit has been built. The old site of the Clinic for Infectious Diseases (No 5) is expected to become the construction site for a new student restaurant, for which design documentation is being created (see map below).

6.1.2 PREMISES USED FOR CLINICS AND HOSPITALISATION

The information to be entered in Table 6.1 is the number of animals that can be accommodated, not the number of animals used. Certain premises may be used to accommodate different species of animal. If so, the same premise should be entered only once.

	Species	No places
	cattle	10i,3s,7o
	horses	7i,8s,5o
_	small ruminants	3i,10s,5o
Regular hospitalisation	pigs	4i,6s,2o
_	dogs	10i,20s,9o
	cats	4i,5s,4o
_	other (birds and exotic animals)	10p
	farm animals and horses	9
Isolation facilities	small animals	27
_	other (birds and exotic animals)	10

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

Legend: i = Internal Diseases Clinic with Chair for Cynology; s = Surgery, Orthopaedics and Ophthalmology Clinic; o = Reproduction and Obstetrics Clinic; p = Department for poultry disease with Clinic; iu = Department of Microbiology and Infectious diseases with Clinic (isolation unit).

6.1.3 PREMISES FOR ANIMALS

Give a description of the facilities for rearing and maintaining normal animals for teaching purposes.

If the Faculty has no farm of its own, please explain in the SER the practical arrangements made for teaching such subjects as animal husbandry, herd health, and the techniques of handling production animals.

Since the Faculty does not have its own farm or a training ground (except its own stables at the clinics), it uses teaching premises (preparation sites, polygons). When attending practical teaching classes of preclinical and clinical subjects, students go to teaching facilities with which the Faculty has agreements on cooperation. All teaching facilities are shown in detail in Chapter 4, Section 4.1.4 (obligatory extramural work). The list of thirteen (13) teaching facilities (veterinary organizations) in which practical training of students in the obligatory subject Ambulatory (Mobile) Clinic takes place is presented in Chapter 4, Section 4.1.3 and in Annex 1 to Chapter 5. The list of 37 veterinary organizations, in which field-professional classes are held, is presented in Chapter 4, Section 4.1.3 and Annex 1 to Chapter 5.

6.1.4 PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

The same room shouldnotbeenteredundertwo or more headings, evenif it is used, for example,for bothpracticalandsupervised work.

Small animals	No. consulting room	No. consulting room 5			
	No. surgical suits		5		
Equine and food animals	No. examination areas		4		
	No. surgical suites	2			
Other ¹⁾			4		
Internal room (laboratory/practicum) sign	nage	Area (m²)	Number of work stations for students		
Internal medicine – In – patient clinics		420	15		
Internal medicine – Clinic		150	20		
Internal medicine – Stables		476	20		
Surgery – Practicum		165	6		
Surgery – Operating room 1		28	6		
Surgery – Operating room 2		32	6		
Surgery – Operating room 3		68,6	6		
Surgery – Operating room (small)		14,6	6		
Surgery – Stables		160	6		
Surgery – Preparation 1		65	6		
Surgery – Preparation 2		87	6		
Surgery – Clinics		37	6		
Surgery – Corridor between stables		36	6		
Surgery – In-patient clinic 1		47,4	6		
Surgery – In-patient clinic 2		38	6		
Microbiology and infections – Clinic for in	fectious diseases (clinic + isolation unit)	400	12		
Obstetrics – Operating room		100	6		
Obstetrics – Clinic		50	6		
Pathology – Dissecting room		116,5	30		
Poultry – Clinic		25,87	12		
Fish and bees – Apiary		15,3	8		
RTG – Department of radiology, ultrasou	50	5			

Table 6.2: Premises for clinical work and student training

Other: Apiary, Clinic for poultry, Dissecting room, RTG

Table 6.3: Premises for lecturing

Number of plac	ces per lecti	ures hall							
Hall	no. 1	no.2	no.3	no.4	no.5	no.6	no.7	no.8	
Places	209	80	80	80	80	76	80	100	
Total number o	of places in	lecture ha	alls: 726						

Building identification	Number or lecture hall signage	Area (m²)	Number of seats for students	Number of hours lecture halls are used per week	Equipment rating* (1 – 5)
Large lecture hall	1	157	209	8	5
Physics lecture hall	3	87	80	22	4
Anatomy lecture hall	5	134	80	2	2
Physiology lecture hall	6	134	80	12	3
Chemistry lecture hall	4	135	80	26	3
Pathology lecture hall	11	134	76		3
Microbiology lecture hall	8	131	80	10	3
Clinical lecture hall	20	117	100	6	2

**lecture hall equipment includes the quality of furniture, technical and other equipment*

The number of lecture halls and laboratories is sufficient for teaching (see Tables 6.1; 6.2 and 6.3). Currently, we have two fully renovated and equipped lecture halls at our disposal (a large lecture hall and Physics lecture hall), while other lecture halls should be renovated in the next two years.

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

Room Places	no. 1 114	no.2 20	no.3 63	no.4 60	no.5 30	no.6 2	no.7 2	no.8 28				
Room Places	no. 9 20	no.10 25	no.11 32	no.12 20	no.13 20	no.14 20	no.15 14	no.16 28	no.17 16	no.18 20	no.19 40	no.20 8
Room Places	no. 21 8	no.22 30	no.23 45	no.24 15	no.25 36	no.26 16						
Total nu	umber of p	places in r	ooms for	group wo	ork: 712							

Internal room (laboratory/practicum) signage	Area (m²)	Number of work stations for students	Number of hours rooms are used per week*	Equipment rating (1 – 5)
Anatomy–Dissecting room 1 st floor	233,36	114	65	3
Anatomy-Dissecting room ground floor	69,67	20	60	1
Anatomy–Histology laboratory	217,26	63	50	3
Anatomy– Museum with bone exhibits	223		65	3
Pharmacology and toxicology– Laboratory	156	60	35	3
Physics – Laboratory	116,30	30	30	5
Physics– Darkroom I	13,47	2	30	4
Physics– Darkroom II	14,72	2	30	4
Physiology and radiobiology- Practicum	105	28	40	4
Hygiene of food of animal origin- Department laboratory	113,34	20	28	3
Feeding - Classroom- practicum	60	25	31	3
Chemistry – Practicum	223	32	25	3
Practicum of the Department of game biology, pathology and breeding	50,4	20	15	4
Practicum of the Department of game biology, pathology and breeding	50,4	20	14	4
Microbiology and infections–Practicum of the Department of microbiology and infectious diseases	81	20	28	5
Parasitology–Laboratory	25	14	40	2
Pathophysiology– Laboratory	77	28	35	5

Pathophysiology– Computer classroom	50	16		5
Pathology-the Department lecture hall discussion microscope space/ there are 10 microscope seats for the purposes of practical teaching	110 (98+12)*	20	36	3
Fish and bees– Laboratory	49,9	40	30	4
Fish and bees–Dissecting room	18,1	8	30	4
Fish and bees–Apiary	15,3	8	30	4
RTG –Laboratory of the Department of radiology, ultrasound diagno- stics and physical therapy	50	30	28	3
Animal husbandry –Laboratory of the Department of animal husbandry	89,5	45 (25 compu- ters)	40	4
Animal husbandry - Small computer classroom of the Department of animal husbandry	33,5	15	5	3
Judicial and administrative veterinary medicine –classroom	58,30	36	14	2
Obstetrics –computer classroom	25	16		5

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

Laboratory Places	no. 1 5	no.2 5	no.3 5	no.4 8	no.5 15	no.6 12	no.7 6	no.8 6	no.9 6	no.10 5
Laboratory Places	no. 12 10	no.12 10	no.13 6	no.14 6						
Total number of ا	places in la	aboratorie	es: 105							

In the last three years, 9 laboratories/practicum used in teaching have been renovated. Design documentation for the others is being created. We anticipate that remaining laboratories/ practicum will be redesigned and fully equipped by 2015.

Internal room (laboratory/practicum) signage	Area (m²)	Number of work stations for students	Number of hours rooms are used per week*	Equipment rating (1 – 5)
Hygiene of food of animal origin- Microbiological laboratory I	35,33	5	28	5
Hygiene of food of animal origin- Microbiological laboratoryll	86,96	5	28	5
Hygiene of food of animal origin-Chemistry laboratory II	53,27	5	28	5
Internal medicine – Laboratory	142	8	45	3
Microbiology and infections– Laboratories IAKLab,LEPTOLab, ARTERLab	150	15	28	5
Poultry– Space for experiments with laboratory	137,77	12	10	3
Poultry– Bacteriological Laboratory	19,92	6	10	3
Poultry– Virology laboratory	18	6	10	4
Poultry– Molecular laboratory	20	6	10	4
Obstetrics- Laboratory for assisted reproduction	60	5	25	5
Radiobiology– Laboratory	19,8 + 15,6	10	8	3
Fish and bees- Wet laboratory	29,7	10	8	3
Fish and bees– Laboratory for general diagnostics	28,3	6	30	4
Fish and bees–Laboratory for diseases of bees	11,2	6	15	4

Please give a brief description of health and safety measures in place in the premises for practical work and in the laboratories to which undergraduate students have access.

- During practical work, students wear work coats, protective gloves and goggles. They work with volatile chemicals in the digester. A protective room is used in case of demonstrations or when handling pathogenic microorganisms.
- During and after practical work, students have to wash hands with liquid soap, dry their hands with paper towels, and if necessary, use hand sanitizers to wash hands.
- There is the equipment and instructions for administering first aid in case of an accident in laboratories.

6.1.5 DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

Diagnostic laboratories

Briefly describe the facilities available for clinical diagnostic work.

The Central clinical laboratory, which is a part of the Clinic for internal diseases, consists of a biochemical laboratory (30m²) which is equipped with the biochemical analyser Technicon RA 1000, ILyte ISE; haematology and cytology laboratory (30m²) equipped with microscope equipment and automatic analyser Serono Baker 9100 and the hematologic machine ABCOSP220EN01 and hematologic counter VET.EXIGO; haemostasis and urinalysis laboratory (30m²) with ACL 7000, automatic coagulometer and a microscope. The Central clinical laboratory serves as a support to the Faculty clinics, as well as a testing ground for the scientific research of the Faculty's employees.

Diagnostic laboratories within the Faculty's departments monitor the work of clinics. Clinical samples of animals-patients admitted to the Faculty's Clinics as well as the samples sent from other veterinary institutions undergo microbiological analysis in the laboratories of the Department of microbiology and infectious diseases. Serving the needs of the Veterinary administration of the Ministry of Agriculture, regular diagnostic tests to detect equine infectious diseases are carried out at the Department, and three accredited laboratories have the status of a national reference laboratory (Laboratory for IAK-IAKLab, Laboratory for Leptospirosis-LEPTOLab and Laboratory for equine viral arthritis-ARTERLab). The Department of Parasitology and invasive diseases has also laboratories where diagnostic tests to detect invasive diseases are conducted. The laboratory for trichinella-LabT is accredited.

Tissue specimens' analyses are carried out at the Department of General Pathology and Pathological Morphology.

Laboratory analyses of fish and bees' diseases are routinely carried out at the Department of Biology and Pathology of Bees and Fish.

At the Department of Pharmacology and Toxicology there are also laboratories in which the analyses of animal tissues, fluids, and environmental samples to detect the presence of heavy and trace metals, wet chemical procedures and enzyme activity are carried out.

At the Obstetrics Clinic, there is a laboratory for assisted reproduction divided into two autonomous parts. The area for assisted reproduction with strict disinfection measures consists of three parts: 1. for aspiration of the oocytes, 2. for media preparation and 3. for oocytes-embryos' manipulations with CO_2 incubator, inverted microscope with micromanipulator. The other part of the laboratory consists of two small parts which serve for: trophoblast proteins determination and advanced milk testing for mastitis control based on clinics and genetics.

Central clinical support services

Indicate the nature of the services and how they are organised (e.g. diagnostic imaging, anaesthesia, etc.)

DIAGNOSTIC IMAGING

Radiographic and ultrasound diagnostic testing is carried out at the Department of Radiology, Ultrasound Diagnostics and Physical Therapy. The Department is equipped with the following:

• High frequency generator with a control desk HYRAI 100

- Rotating anode tube IMD/XR03
- Digitizer CR 300-X with equipment
- Processing and picture archiving system
- Ultrasonic device MINDRAY DP50VET
- CT device Toshiba

ANAESTHESIA

Anaesthetic equipment is located on the surgery premises of the Surgery, Orthopaedics and Ophthalmology Clinic and the Obstetrics Clinic.

All patients undergo general inhalatory anaesthesia with Sevoflurane or Isoflurane in oxygen through closed circle system.

- Anaesthetic device with hemodynamic monitor EICKEMEYER
- Veterinary anaesthetic ventilator
- Monitor for vital functions B30
- Anaesthetic device Aspire 7900 AMARTVENT with hemodynamic monitor
- Anaesthetic device for large animals

6.1.6 SLAUGHTERHOUSE FACILITIES

Describe briefly the slaughterhouse facility to which the Faculty has access, including distances from the Faculty and level of activity.

Field practical training is conducted in the export facility **PIK Vrbovec**, which is 44 kilometres away from the Faculty. The slaughterhouse consists of two slaughter lines – processing lines for pigs and cattle. On an average day, 1300 pigs and 200 cattle are processed. Students are introduced to the activities of the authorized veterinary inspection on the premises, such as *ante mortem* inspection, animal welfare, sampling, waste management (e.g. BSE), artificial digestion (*Trichinella*), *post-mortem* inspection, meat labelling and classification and categorization of carcasses. In the practical part, students examine organs and carcasses of slaughtered pigs and cattle in accordance with the current European legislation, and as directed by the inspectors and teachers. For more details see Chapter 4, Section 4.1.5.



Students also visit the poultry slaughterhouse **"Koka Varaždin**" which is 70 km away from the Faculty. There, they examine a processing line, perform *ante mortem* and *post mortem* inspection and get acquainted with other activities of the veterinary inspection in the facility.

6.1.7 FOODSTUFF PROCESSING UNIT

Describe briefly any access that the Faculty has to foodstuff processing units.

- Students visit the meat processing export facility **PIK Vrbovec**, which is 44 kilometres away from the Faculty. PIK exports its products to the EU countries, the US and the third countries. Therefore, students get acquainted with the facility layout and design, hygienic and technological standards and food safety systems in the facility. They are also introduced to the activities of the veterinary inspection when conducting official controls and the export of products. Students inspect refrigerators, plants where pork and beef is cut, production units-production of sausages, meat products in pieces and units for heat treatment of products, micro meat cutting, packaging and storage.
- Students visit the meat processing industry "**Cerovski**" which is 25 kilometres away from the Faculty. There, they get acquainted with the facility of a craft production level, hygienic and technological conditions, manufacturing processes and veterinary controls in the meat industry.
- Students visit the company "**Medo-flor**" which is engaged in the production of bee products; that is to say honey filling and the production of other bee products. Students are introduced to the technology of storing, ripening and honey bottling, labelling and control.
- Students visit the ice-cream factory "Ledo", which is located 2 kilometres away from the Faculty. In the facility, students get acquainted with technological and hygienic standards in the production of ice cream, the method of veterinary control of raw materials and products, and systems of food safety and quality.
- Students visit the dairy "**Bohnec**" in Ludbreg which is 90 kilometres away from the Faculty. There, they are acquainted with the milk receiving process and control, technological and hygienic principles of production of certain dairy products.
- Students visit the "Dolac" market in Zagreb, which is located 2 kilometres away from the Faculty. There, they are acquainted with the methods of selling and controlling traditional and other products (such as poultry meat, eggs, dairy products, smoked and cured meats). They also visit the fish market where they judge the freshness of fish and other fishery products.

As a part of training at the Department of veterinary public health; subjects Quality control and food hygiene, Veterinary public health; Veterinary food safety legislation:

- Students visit the **Veterinary directorate** of the Ministry of Agriculture of the Republic of Croatia, which is just 100 meters away from the Faculty. There, they are introduced to the structure and activities of the Directorate, and the accompanying legislation in the field of veterinary public health. They also verify HACCP plans (for more details, see Chapter 4,Section4.1.5).
- Students visit the slaughterhouse and meat processing plant "Kurilovčan", which is 20 km away
 from the Faculty. There, they are acquainted with the work of unauthorised veterinarian in this
 type of a facility, and the records and procedures of veterinary control in particular, computer
 program VETI KOLK and traceability. They also examine hygienic-technological and veterinary
 sanitary conditions of the facility and it's interior.
- Students visit the slaughterhouse "Lorković", which is located 70 km from the Faculty. Pigs, heifers, calves, lambs, cows and piglets are processed in the slaughterhouse (up to 200-250 pigs and 30-40 cattle per day). Students observe the slaughter processing and related examinations, documentation, the facility and equipment.

6.1.8 WASTE MANAGEMENT

Briefly describe the systems and equipment used for disposing of waste material; cadavers, carcasses, biological waste of different types, excreta, etc.

Biological waste (carcasses, parts of carcasses, leftovers of food of animal origin, substrate with microorganisms), chemical waste- chemical residues and other waste (used plastic and glassware) are created during clinical and practical work. Depending on the type, the waste is collected in respective containers:

- plastic bins with red lids are used for infectious waste (used gloves, various inorganic infectious materials, syringes, scalpels, etc.). They are sent, together with the register, to the Faculty's collection point;
- carcasses, parts of carcasses and various organs and waste food of animal origin are disposed of in specially-marked plastic bags, which are then transported to the collection point of the Department of Pathology and Pathological Morphology;
- Chemical residues are collected in containers with screw caps. Containers are labelled according to the type of chemicals (acid and aqueous solutions, organic solvents). Containers and corresponding waste disposal forms are sent to the Faculty's chemical waste landfill.
- The Faculty has concluded a waste disposal contract with a certified company which collects the waste material.

During clinical work and practical exercises, different types of waste are produced: pathological waste – by-products of living origin of Category 1 (body parts-tissues and organs removed during surgeries, tissues taken for diagnostic purposes, carcasses and parts of carcasses); organic waste – animal origin by-products of Category 2 (manure, leftovers of animal foodstuffs); infectious waste (cultures and supplies from microbiological laboratories, parts of equipment, materials and equipment that came into contact with the blood and secretions of infectious animals and other infectious material; chemical waste (solid, liquid or gaseous chemicals used in diagnostic or experimental procedures, cleaning or disinfecting and other waste (used plastic or glassware). Waste is disposed of in a manner prescribed by different legal acts of the Republic of Croatia in accordance with EU legislation.

Depending on the type of waste, the procedure for the waste disposal at the FVMUZ is as follows:

- 1 Pathological waste from the Faculty's departments and clinics, (Department of Veterinary Pathology, Department of Anatomy, Histology and Embryology, Surgery, Orthopaedics and Ophthalmology Clinic, Internal Diseases Clinic and Reproduction and Oobstetrics Clinic), after being deposited into specially marked plastic bags or containers is taken to the collection point for by-products of living origin of Category 1, which is situated within the Dissecting room of the Department of Veterinary Pathology which is being held at a constant temperature of 40°C;
- 2 Infectious waste is collected in specially marked plastic containers with caps. Containers, with corresponding waste disposal forms are sent to the Faculty's chemical waste collection point;
- 3 Organic waste is disposed of in specially marked containers and then taken to a covered collection point for Category 2 by-products of animal origin (manure) which is next to the Dissecting room of the Department of Pathology and Pathological Morphology.
- 4 Chemical waste is collected in containers with screw caps. Containers are marked according to the type of chemicals (acid and aqueous solutions, organic solvents). Containers and corresponding waste disposal forms are sent to the Faculty's chemical waste collection point.

Waste is transported by certified companies with which the Faculty has concluded contracts on the disposal of different types of waste.

6.1.9 FUTURE CHANGES

Outline any proposed changes in the premises that will have a substantial effect on the Faculty, and indicate the stage which these have reached.

The Faculty's capital investments in the near future refer to the reconstruction of the Department of anatomy and histology with all related services, and the construction of a new student restaurant within the campus. Necessary documentation for both projects is currently being created. Furthermore, the FVMUZ owns about 100 hectares of land in Rugvica (Dugo Selo municipality), which is around 15 km east of Zagreb. Here, we have envisaged designing and building the Faculty training ground with a range of amenities necessary for improving clinical teaching in the integrated graduate studies and postgraduate studies. Certain capacities of the training ground could be used for the purposes of organizing continuing education courses for veterinarian practitioners. Some business entities with their own interests should be included in the implementation of the project. The intention is to take advantage of the EU structural funds which are necessary for the implementation of this project. The project itself should be of great importance for the Faculty in the near future.

Clinical lecture hall is intended to be renovated this year as well as laboratories of the Department of Pathology.

6.2 COMMENTS

Comment on the adequacy of the buildings in general for undergraduate teaching.

In the past ten years, clinical premises have been fully reconstructed and we believe that they entirely meet the requirements of quality practical work. In recent years, we have also begun with the reconstruction of preclinical premises owing to the fact that most of them were deteriorated. More than 70% of these premises have been renovated so far and we hope that other facilities will be renovated in the near future.

Comment on the adequacy of the equipment in general for undergraduate teaching.

A total of 3,654,618.90 EUR has been invested into medical, laboratory, optical and other equipment in the same period. 70% of this amount has been provided through loans and the city of Zagreb funds while 30% of the amount has been provided through the Faculty's revenues. The premises of clinics, lecture halls, laboratories for students and diagnostic and research laboratories have been modernized by installing this newly purchased equipment. We believe that the currently available equipment can meet the requirements of high-quality teaching in the graduate study, but it should be noted that there is room for improvement in certain segments.

Comment on the maintenance of buildings and equipment.

In the last 10 years (2003-2012), there were significant positive changes, especially in terms of reconstruction and adaptation of certain premises of the Faculty. Trying to adapt the existing buildings and premises of the Faculty to the requirements of modern teaching and raise professional and research potential of the Faculty, we have started with the reconstruction and adaptation of the existing buildings and premises.

In the past ten-year period, the Faculty invested a total of 6,456,895.61 EUR in the reconstruction and adaptation of buildings and their surroundings. 73% of the amount was provided through state budget loans and the City of Zagreb funds while 27% was provided through the Faculty's revenues.

A total of 3,654,618.90 EUR has been invested into medical, laboratory, optical and other equipment in the same period. 70% of this amount has been provided through loans and the city of Zagreb funds while 30% of the amount has been provided through the Faculty's revenues. The premises of clinics, lecture halls, laboratories for students and diagnostic and research laboratories have been modernized by installing this newly purchased equipment.

6.3 SUGGESTIONS

lf you are unhappy with any situation, please list any improvements you would make in order of preference.

In order to maintain a complex system of teaching buildings and facilities within clinics, more state budget funds should be allocated to the Faculty to avoid devastation of the existing and newly renovated premises of the campus.

It is not possible to achieve satisfactory results with the current method of funding scientific-research activities from the budget, and it is difficult and almost impossible to rely solely on the Faculty's own revenues. We believe that it is necessary to turn to the European funding sources in order to reach the European average in terms of the allocation of funds for capital investments and their maintenance.

Figure 1. General map of the Faculty of Veterinary Medicine University of Zagreb





Figure 2. Map of lecturing halls

CHAPTER 7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN













Chapter 7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1 FACTUAL INFORMATION

7.1.1 ANATOMY

Indicate the materials that are used in practical anatomical training, and how these are obtained and stored.

Bones, individual organs and whole animals are used in practical anatomy training. Bones that are used, come from the bone collection of the Department, and they are used as individual bones and as complete skeletons of various domestic and wild animals. Dogs, sheep, horses, hens and occasionally pigs are being used in training. Laboratory rats, reptiles and sea mammals (dolphins) are used among other animal species.

	Dog		Run	Ruminant		Equine		Other	
	Year N* 2012	Year N-1 2011	Year N* 2012	Year N-1 2011	Year N* 2012	Year N-1 2011	Year N* 2012	Year N-1 2011	
Live animals 1)	1	1	1	1	1	1	0	0	
Cadavers ¹⁾	20	20	3	3	2	1	1 pig 20 hens 2 dolphins 1 sea turtle 1 cat 20 rats	2 pigs 20 hens 1 dolphin 1 sea turtle 1 cat 20 rats	
Specimen ¹⁾	50	50	20	20	70	70	50	50	
Other ²⁾	0	0	10	10	10	10	0	0	
Eg ultrasound	0	0	0	0	0	0	0	0	
Computer assist. teaching	0	0	0	0	0	0	0	0	

Table 7.1: Material used in practical anatomical training

¹⁾ give figures, ²⁾ indicate, * year prior to visitation **specimen** ¹⁾- fresh or formaldehyde individual internal organs (lungs, larynges, hearts, kidneys, spleens, stomachs, livers, sexual organs, thoracic and pelvic limbs, heads with neck, complete skeletons or individual bones; **other**²⁾- models of animals and their body parts made of artificial materials.

Dogs and horses used in practical anatomy training are donated upon euthanasia. Sheep, pigs and hens are procured on the market and euthanized at the Faculty's Clinics. Upon euthanasia, formal-dehyde solution is used for fixation and, and upon fixation, animals are stored in appropriate basins. Individual organs of domestic animals are also procured, mainly horses, cattle or pigs from slaughter-houses.

After dissection, internal organs are harvested and stored in the collection of wet (fixed) organs and animal body parts, for use in further training. Clinical anatomy training is performed both on the aforementioned preparations and live animals, dogs, horses and cattle which are hold at FVMUZ Clinics for the practical teaching of student.

7.1.2 PATHOLOGY

Table 7.2: Number of necropsies over the past 3 years

	Caracian		Number of necrops	ies	A
	Species	Year N* (2012)	Year N-1 (2011)	Year N-2 (2010)	Average
Food-producing animals;	Cattle	6	3	5	
	Small ruminants	13	10	8	-
	Pigs	51	114	150	- 120
	Other farm*** animals	0	0	0	-
Equine		16	13	17	15
Poultry/eggs		173/650	221/600	195/600	
Rabbits		25	15	31	220
Companion animals/ exotic	Dogs	457	520	360	7
	Cats	165	146	157	_ 735
	Other**	96	153	152	-

*year prior to visitation,

Indicate species - see additional Table 7.2.1 exotic birds (11/25/22), reptiles (3/6/3),

Table 7.2.1: Number of other** (species are indicated) necropsies in last three years

Species	year N* (2012)	year N-1 (2011)	year N-2 (2010)
Wolves	3	28	30
Mice	10	16	18
Rats	6	4	5
Turtles	1	1	9
Roe deer	1	3	4
Hedgehogs	1	1	3
Chinchillas	1	2	4
Exotic birds	32	45	37
Snakes	3	3	4
Guinea pigs	1	4	3
Lizards	9	11	5
Ferrets	6	11	3
Otters	2	1	7
Monkey	4	4	2
Lynx	0	1	0
Porcupine	1	2	1
Raccoon	0	0	1
Tapir	0	0	1
Antelope	2	5	1
Civet	1	0	2
Elephant	0	0	1
Cheetah	0	0	1
Kangaroos	1	1	2
Lemuridae	2	0	3
Beavers	0	1	0
Mole	0	0	1
Hamster	2	0	0
Wild boars	0	1	0
Deer	0	2	1
Squirrel	0	1	0
Leopard	0	1	0
Fox	1	0	0
Pigmy Hippopotamus	1	0	0
Camel	1	0	0
Тирауа	1	0	0
Degu	1	2	2
Mara	0	1	0
Donkey	2	1	1
TOTAL	96	153	152

Additional sources of material:

Wildlife carcasses - red deer (N*=16/ N-1=5/ N-2=3) beaver (2/1/1), wild boars (60/10/0), martens (0/13/5), roe deer (19/0/0), red foxes (31/1/0), wild cats (10/0/0), dormouse (0/0/46)

Livers of red deer - (N*=256/ N-1=270/ N-2=269)

Data of wildlife necropsies were not shown in Table 7.2 cause only students enrolled elective subject "Wildlife diseases" had an opportunity to work on wildlife necropsies.

Carcasses of stone and pine martens were obtained from cooperation with different hunting associations. Carcasses of beavers and dormice were conveyed within cooperation with the Faculty of Forestry, while wild cats were processed under cooperation with the Faculty of Agriculture. Wild boars, roe deer and red foxes are regularly collected within the scientific project "Wildlife health and zoonotic potential in the Nature Park Medvednica". Red deer carcasses were obtained from red deer farm "OPG Letec" and deer farm "Zidina"-Višnjica, as part of the preliminary health monitoring activities during preparation of the CRA* Project ("Nutritional and health measures in deer farming as a profitability factor") and after its approval by the Ministry of Agriculture.

*CRA – Council for Research in Agriculture

Deer and fallow deer livers have been harvested on the basis of the Contract on professional cooperation between the Faculty and "Hrvatske šume" d.o.o. signed for the purpose to control the Large American Fluke (*Fascioloides magna*) and on the basis of the research project "Applied biomedicine research of wild deer" (MZOS - 053-0532400-2399). The samples were collected from red deer natural breeding in hunting grounds of East Slavonija and Baranja managed by "Hrvatske šume" d.o.o.

7.1.3 ANIMAL PRODUCTION

Indicate the availability of food-producing animals for the practical teaching of students a) on the site of the institution; b) on other sites to which the institution has access.

a) on the site of the institution;

Food producing animals currently available for the practical teaching of students at the Faculty are:

- Ruminants 6 cattle, 10 sheep, 10 goats and throughout a year approximately the same number of juveniles
- Equidae 7 horses, 1 donkey

Animals are housed in Clinic stables and are available for students' practice throughout the whole academic year.

b) on other sites to which the institution has access

Faculty has signed a series of contracts with farms where food-producing animals are bred. Strict application of 'hands-on' practical training for students is being executed in small groups supervised by the teachers on farms listed in Table 7.2.2. Other sites are visited by the students in larger groups or individually, during extramural work.

Table 7.2.2 List of sites to which the institution has access with number of food producing animals, equines, poultry, rabbits and other species

VISITED FARMS	Year	bovine	small ruminants	horses	donkeys	pigs	poultry	rabbits
	2010	209	111	15	2	84	54	8
OPG* Džakula	2011	217	98	25	5	69	60	6
	2012	102	124	23	5	104	102	7
Farm "Vukovina"	2010	2457	-	-	-	-	-	-
	2011	1513	-	-	-	-	-	-
	2012	2112	-	-	-	-	-	-
Farm "Sljeme"	2010	72	15	-	-	-	-	-
	2011	98	20	-	-	-	-	-
	2012	59	17	-	-	-	-	-
	2010	80	34	2	-	-	52	-
Farm "Križevci"	2011	99	23	2	-	-	40	-
	2012	85	27	2	-	-	51	-
OPG Mraović	2012	20	39	7	-	-	-	-

***OPG** - Obiteljsko Poljoprivredno Gospodarstvo – Family farm

Farma "Vukovina Fiolić" d.o.o.

Farma *Vukovina Fiolić d.o.o.* is situated in Turopolje region near Velika Gorica. The farm breeds up to 3000 beef cattle under the constant veterinary supervision. It has got the full circle production process of corn silage with modern machinery and application of agrotechnology in crop husbandry. They use their own silos for storage of cattle food, that is 3000 tons of corn silage and 1200 tons for raw corn seed. The uniqueness of the farm in Vukovina is its attempt to renew the family herd of Croatian indigenous bovine "Podolac" besides regular production. Construction of new fattening stables is underway for the purpose of increase of farm capacities.

Farma "Dubravica" d.d.

Farma *Dubravica d.d.*, company for pig production has been in operation since 1968, with an integrated reproduction centre, production of fatlings and a feed mixing facility. *Farma Dubravica* d.d. raises a sufficient number of fatlings on its own and in its reproduction centre, special attention is given to the selection of family herd in order to improve the quality of fatlings. Fattening facilities are modernized, the ratio of the mixture is determined, and feeding procedure is supervised with the usage of electronic devices. Due to the sensitivity of the fatlings, special attention is given to veterinary control and maintaining highest sanitary standards in the fattening procedure. Yearly production amounts to 25000 fatlings and 1500 sows, which is currently enough for the needs of pig meat production. All the necessary amount of mixture for the fatlings nutrition is produced in the feed mixing facility, while the surplus of approximately 20 000 tons is being sold on the market.

OPG Džakula

The specialty of the farm is 120 sheep of Merinoladschaf breed, and they produce an offspring of approximately 120 – 140 lambs with eco-certificate.

Based on the contracts with Faculty of Agriculture, Centar for Reproduction in livestock of Croatia, private farms and veterinary field practices, regular visits to livestock farms are performed.

At the farm *Gruda, d.o.o., Vukovina*, practical arrangements are made for the teaching of Technology of Animal Production and Breeding. The farm provides extended fattening of bull-calves, its capacity being 2000 animals.

At the pig farms *Dubravica d.o.o.* (Dubravica) and *Zbelava d.o.o.* (Varaždin) with around 1 000 sows and gilts, students become familiarised with production cycles on pig farms.

7.1.4 FOOD HYGIENE/PUBLIC HEALTH

Indicate the availability of farm animals and products of animal origin for the practical teaching of students in veterinary public health, food hygiene, inspection and technology.

Within the frame of practical training performed extramurally in 9th and 10th semester of the study in subjects Hygiene and Food Technology and Veterinary Public Health track, students visit slaughterhouse objects, meat industry facilities, dairies, ice cream factory, Zagreb market and honey producers. Classes are held in small groups with no more than six students. In slaughterhouse objects, students attend animal *ante mortem* examinations and treatment of:

- cattle (heifers, calves),
- small ruminants (lambs),
- pigs (fatlings and piglets)
- and examination of meat and organs post mortem.

Under the supervision of veterinary inspectors and teachers, students perform independent examination. A few slaughterhouses have been chosen for training in which students should overmaster the skills of veterinary inspection of animals before and after slaughter, inspection of meat and organs, and organization of facilities and implementation of the HACCP system. Details on the previously described practical training have already been detailed in the Chapter 4 (see section 4.1.5 and Chapter 5, Annex 1).

Practical training of students in food hygiene is based on animal products obtained from the local market. Such products may include: different kinds of pasteurized milk, chocolate milk, sweetened and unsweetened condensed milk, powdered milk, yogurt, cultured milk, cream, butter, infant formulas, cheese and ice cream. Food technology processes are implemented on raw beef, raw pork and different types of sausages. In addition, students are trained in the laboratory for hygiene and food control where they analyse various types of sausages as well as eggs, raw meat, beef, pork and poultry, fish, shellfish and honey.

During training held by the Faculty Division/Department students, under supervision, take part in practical exercises in hygiene and control of meat, fish, eggs, milk and their products, including bacteriological and chemical analysis. In bacteriological and chemical analysis exercises, students are introduced to the legislation that covers this area and international standards, as well as with admission of samples.

Within bacteriological analysis exercises, students get acquainted with the general requirements and guidance for microbiological tests (ISO 7218), the preparation of test samples, initial and other decimal dilutions for microbiological examination (ISO 6887), and methods of microbiological tests: horizontal method for microorganisms count (ISO 4833), horizontal method for the detection of *Salmonella* spp (ISO 6579, ISO 6785), horizontal method for sulphite-reduction bacteria count in anaerobic conditions (ISO 15 213), horizontal process of coagulase-positive *Staphylococci* count (ISO 6888-1), horizontal method for *Enterobacteriae* count (ISO 21 528), horizontal method for the detection and count of *Escherichia coli* (ISO 7251), counts of yeast and mould colonies (ISO 7954) and horizontal method of determining the presence of *Listeria monocytogenes* (ISO 11 290) (demonstration excercise). Also, students determine water activity (ISO 21 807) and the proof of antibiotics presence in meat (Kundrat method).

In the area of chemical analysis, students are introduced to the different types of food, and composition tests, analysis of freshness and sustainability of the products and the tests of adulteration. During practical exercises, students learn the gravimetric, titrimetric and spectroscopic techniques, chemical analyses of food as well as the identification of meat species in meat products through ELISA procedure. The above methods for particular analysis are first carried out by a teacher/assistant and later independently by students according to the existing norms, rules and laws. Students practical work and end results are monitored and verified by a teacher/assistant.

7.1.5 CONSULTATIONS AND PATIENT FLOW SERVICES

7.1.5.1 CONSULTATION

State the number of weeks, in the course of the year, during which the clinics are open.

During the course of the year every week all FVMUZ Clinics are open 365-day. The FVMUZ Clinics are open 24 hours a day during normal working hours and during night duty. The work at the clinics is performed during normal working hours, from 8 a.m. to 6 p.m., on weekdays and Saturdays (except for Department of radiology, ultrasound diagnostics and physical therapy which works double shifts on Saturdays, from 9 a.m. to 12 a.m. and 4 p.m. to 6 p.m. On Sundays and public holidays, ordinaries are on duty from 9 a.m. to 11 a.m. while orderlies/technicians are on duty from 7 a.m. to 6 p.m.

State the number of consultation days each week.

All Clinics are open for consultations from 8 a.m. to 6 p.m. Monday to Saturday, and from 9 a.m. to 12 a.m. on Sundays. For emergencies all Clinics are open from 0 – 24.

State the consultation hours.

Faculty Clinics are open for consultations (by appointment and as a first time referral) for five days during the week (from Monday to Friday) during the whole year (52 weeks). Consultation hours are from 9 to 12 a.m. and 4 to 6 p.m. Sometimes, consultation time is extended beyond the regular consultation hours.

All of the Faculty Services (Internal Medicine, Cardiology, Dermatology, Neurology, Ophthalmology, Surgery, Ultrasound Diagnostics, Radiology, Oncology, Obstetrics, Clinical Diagnostic Laboratory, Exotic and Large Animal Consultation) are available during the aforementioned five days daily.

Emergency Service and Intensive Care are provided 24h/7d/52w, during the whole year.

7.1.5.2 PATIENT FLOW

The number of animals to be stated are for all disciplines combined (medicine, surgery, reproduction, etc.). In Table 7.3 only animals coming into the Faculty should be included. Animals studied in practical teaching outside the Faculty should be entered in the section entitled "Ambulatory Clinic" (Table 7.4).

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

		Number of cases							
	Species	year N* (2012)		year N-1 (2011)		year N-2 (2010)		Average	
		а	b	а	b	а	b		
Food-producing animals;	Bovine	42	24	52	23	48	22		
	Ovine, caprine	45	15	15	7	11	6		
	Porcine	54	27	27	26	28	25	166	
	Other farm animals **	0	0	0	0	0	0		
Poultry		19	0	4	0	8	0	_	
Rabbits		763	206	434	215	407	205	754	
Equine		287	82	216	64	162	40	284	
Companion ani- mals/exotic	Canine	27513	3167	27066	2336	25502	1651	- 37216	
	Feline	6298	821	6778	579	6540	478		
	Other**	956	50	895	53	925	39		

*year prior to evaluation
7.1.6 VEHICLES FOR ANIMAL TRANSPORT

State the number and nature of the Faculty vehicles that can be used to bring sick animals to the clinics.

All transport of animals to the Faculty and from the Faculty is conducted in accordance with legal requirements relating to the transport of animals (Regulations). The Faculty owns a transport truck registered for transportation of farm animals and there are three licensed drivers who take turns on duty, so it is possible to transport animals 365 days a year. As for the 'small companion animals', the Faculty has signed a contract with the transportation company 'ZOO-TAXI' which performs transport within the city of Zagreb and surrounding area.

7.1.7 ON-CALL EMERGENCY SERVICE

Outline what emergency service is available (full-time, 24 h service, ON-CALL or 8-22 h duty) and discriminate for species.

For all domestic animals ON-CALL emergency service is available 24 hours/day.

For stationed patients and in order to provide emergency veterinary care, a 24-hour duty is organized outside normal working hours, namely on weekdays and Saturdays, after 6 p.m., Sundays and on public holidays after 11 a.m. in the form of duty, stand-by duty and on-call duty.

Duty is a form of work which requires presence of an attending DVM and attending orderly/technician at the Faculty's clinics after regular working hours, in order to provide services to stationed intensive care unit patients and emergency veterinary care.

The standard team on duty at the FVMUZC comprises:

- 1) DVM in associate, professional or scientific-educational title with valid licence issued by Croatian Veterinary Chamber and
- 2) Veterinary orderly/technician.

Two attending DVMs are present at the Surgery, orthopaedics and ophthalmology clinic due to the enlarged volume of work. The other DVM is paid from the Clinics' own funds.

Stand-by duty is a form of work in which DVMs (specialists) are not present at the Faculty's clinics, but they should be available upon the call to provide emergency specialist services.

On-call duty is a form of work which requires a presence of a larger number of employees to perform emergency specialist services, for the purpose of emergency surgical procedures (colic surgery in horses, embryotomy, etc.).

Students of the integrated undergraduate and graduate study of veterinary medicine participate in the work of clinics during day and night duty throughout the year during Professional Clinical Work (PCW). PCW in the amount of 120 hours is obligatory for 12th semester students of the integrated study and students may do it earlier, during volunteer work at the clinics in the afternoon and night duty, from 4 p.m. to 8 a.m., where the student is trained to independently perform specialized asks in the veterinary profession, under the supervision of a mentor (attending DVM).

7.1.8 ON FARM TEACHING AND OUTSIDE PATIENT CARE

7.1.8.1 Ambulatory (Mobile) Clinic

The Ambulatory (Mobile) Clinic is defined as a unit which provides on-call outside services to farms and other institutions and is generally operated on a commercial basis.

AMC Ambulatory (Mobile) Clinic training for students in 10th and 11th semester is organized in collaboration with veterinary organizations in the wider Zagreb area, where students spend approximately 120 hours. Contracts on cooperation are signed between the Faculty and veterinary organizations every year. The contracts define the rights and duties of the contractor in order to achieve optimum results in the implementation of teaching. Taking into account the organization of veterinary services' needs, the Faculty prefers collaboration with veterinary organizations that are carriers of state authority in the field of veterinary public health (inspection), and the implementation of measures in the control and prevention of infectious and parasitic diseases of domestic and wild animals. Currently, we have contracts on cooperation with 13 veterinary stations and ambulatory clinics, most of which are properly authorized, and they are situated in the areas with higher number of owners who keep farm animals. AMC is conducted by teachers from four Clinics: Surgery, Orthopaedics and Ophthalmology Clinic, Reproduction and Obstetrics Clinic, Internal Diseases Clinic and Department of Microbiology and Infectious Diseases with Clinic with the help of veterinary technicians and nurses. In the last couple of years, the number of students in each group has ranged from 17 to 20, providing that one teacher works with a group of four to five students. Staff and teachers of AMC are in constant contact with regional veterinarians, negotiating on a daily basis and organizing classes to ensure a variety of casuistry and greater number of treated animals. Classes are conducted weekly from Monday to Thursday, beginning at eight o'clock in the morning. Despite all the efforts, for approximately ten years, we have witnessed continuous decline in the number of patients at the Mobile Clinic which is a reflection of a long economic crisis that has resulted in drastic decrease in the number of domestic animals, especially pigs and cattle. Also, visits to the large pig farms were forbidden, by the order of Veterinary Directorate from 2005 to 2011, due to the danger of spreading of CSF - so it has to be taken into consideration that the pig farm "Dubravica" was not our training facility in that period.

• State the number of hours of operation per week. Is emergency service provided 24 h/day, 365 days per year? What is the degree of student participation (include duties)?

The number of hours of operation per week is within average of 20 hours. Emergency service is provided with collaboration of the Clinics of the Faculty 24 hours per day/365 days of the year. Degree of student participation is 100%, during the academic year. Student duties during AMC are listed under "Main tasks expected from students" (see Chapter 4, Section 4.1.3).

State the number, the type and the seating capacity of the vehicles used to transport students working in the ambulatory (mobile) clinic.

We are in use of two (2) midi-buses, which have capacity of 28 person + driver, mini-bus which has capacity 18 person + driver and a van which has capacity 8 person + driver. This number includes teaching personal and technical support (veterinary technicians and veterinary orderlies).

State the approximate number of sick animals (specify cattle, swine, equine, poultry or small ruminants, others) seen by the ambulatory clinic per year during the past three years (Table 7.4).

Please see Table 7.4a

State the average number of visits in a year made by the ambulatory clinic to farms and other institutions.

Realization of the subject AMC takes 60 hours per student in the 10th semester and 60 hours per student in the 11th semester. In each semester, around 36 out on the practice field by the Faculty's buses are organized according to the published schedule. The field training in the subject AMC begin every day (Monday to Thursday) at 8 a.m. in the morning, and the scheduled return is at 2 PM (for details see Chapter 4, paragraph 4.1.4). Realization of the subject Herd Health is carried out through three field trips per student, each field trip lasting 5 hours. The purpose of practical training of students at a cattle farm is to familiarize the students with the specifics of herd health (for details, see Chapter 4, Section 4.1.4). Practical extramural training from the 1st to the 6th year is included in other regular subjects, its organization shown in detail in Chapter 4, Section 4.1.4 and Table 4.5. Practical training included in regular subjects in the curriculum is organized in a slaughterhouse, dairy, honey, fishery and family farms, with the total of 147 hours per student. The number of field trips is determined by the syllabus of each subject. Field trips are organized each academic year and take place in the institutions with which the Faculty has signed contracts. Therefore, thirty (30) working days of practice outside the Faculty is organized per student during the period of obligatory subject CFW. Five (5) working days or 20 hours per student are organized in the Ministry of Agriculture and eight (8) working days or 64 hours per student in the Croatian Veterinary Institute in Zagreb during the obligatory subject PCW (see Annex 1, Chapter 5).

Species –			Average		
		year N* 2012	year N-1 2011	year N-2 2010.	Average
Food-producing	cattle	426	137	91	
animals	small ruminants	20	9	4	295
	pigs	111	27	31	- 285
	other farm animals**	0	0	0	
Poultry (no of flocks)		0	0	0	
Rabbits (no productio	n units)	0	0	0	
Equine		35	10	18	21
other		52	45	19	39

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

*year prior to visitation, **Indicate species

7.1.8.2 OTHER ON FARM SERVICES AND OUTSIDE TEACHING

If there is no on duty Ambulatory (Mobile) Clinic, a Faculty may have defined contracts with farms or other institutions to allow for outside teaching and patient care. Similarly, a Faculty may provide herd-health services. Please indicate if and to what extent this applies to your Faculty. If applicable please provide no. of patients seen on outside teaching

These data refer to the number of animals that have been available to students for the practical training during the extramural classes as well as practical training in the courses Obstetrics and Herd Health.

		<u> </u>	•		
		Number of	Number of patients		
	species	year N* 2011/2012 57 students	year N-1 2010/2011 40 students	Average	
	cattle	2218	2069	7	
	small ruminants	357	2142	-	
	goat	91	1702		
	sheep	266	440		
Food-producing animals	pigs	970	2078	- 4920	
	other farmanimals**	4	2	_	
	mouflon	-	1		
	wild boar	3	1		
	deer	1	-		
				7	
	horses	146	165		
Equine	donkey	142	126	- 156	
Other	mule	4	36		
	zebra	-	1		
		26527	3331		
	dogs	913	655		
	cats	205	199		
	rabbit	7	10		
	chicken	22241	2412		
	turkey	22	42		
	duck	1200	-		
	partridge	1900	-		
	pheasant	-	1	- 14929	
	ostrich	-	2		
	guinea pig	3	-		
	hamster	2	2		
	feret	2	4		
	iguana	-	1		
	turtle	-	2		
	bees (colonies)	2	-		
	california trout	30	-		

Table 7.4b: Number of patients seen on outside teaching in the past three years.

*year prior to visitation, **Indicate species

7.1.9 OTHER INFORMATION

Indicate any notable additional outside sources of material for clinical training purposes, such as animal charities, animals awaiting slaughter, etc.

All the major external sources of clinical material used for practical classes for students are visible from contracts between the Faculty of Veterinary Medicine and the particular institution, whether it is a charitable institution or other business entity. We would like to emphasize the use of animals from the SCA (Small companion animals) category from several organizations for the care of abandoned household SCA such as '*Noina Arka'*, '*Plavi križ'* and '*Prijatelji životinja'* and the city's asylum for abandoned animals '*Dumovec'*. For large animals from outside sources we would like to point out as particularly beneficial the agreements with the Croatian Veterinary Institute, the *National Stud Farms Lipizzan horses Lipik and Đakovo*, "*Lemeš' Center for Reproduction of horses, "Dubravica" pig farms, Centre for Reproduction of Livestock in Croatia* - Zagreb and Križevci and "*Sljeme*" Experimental Charolais Cattle Farm (owned by the Faculty of Agriculture) (for details see Chapter 4, Section 4.1.4 and Annex 1 to Chapter 5). These partners provide students with the opportunity for practical training in treatment and prevention of disease.

Indicate how the level of clinical service that is offered by the Faculty (in small companion animals, equines and production animals) compares with outside practices in terms of facilities, hours of service, equipment, expertise, responsiveness, etc.

Small companion animals

For the purposes of diagnostics and treatment, the FVMUZ Clinics are equipped with the best possible equipment in our circumstances. This means that if we compare it with the other veterinary institutions that are involved in treating small companion animals, the advantage is more than evident in FVMUZ favour. These claims are supported by data on the personnel staffing and equipment listed in sections (see Introduction and Chapter 10). In addition, we would like to mention a permanent 24-hour service throughout the calendar year. Continuous education of our staff at Clinics is on-going. Almost all the teaching and scientific staff members at FVMUZ Clinics are specialists in certain areas, meaning they have completed specialist & PhD studies in Croatia. We know that the needs are greater, so we have started educating permanent staff members in Clinics in terms of acquiring the *Diplomate* status. At the moment we have five *Diplomates* at the Clinics, with three more in the stage of training to acquire this status. All this proves that the Faculty of Veterinary Medicine's clinics still are, as they have always been, the central venue for veterinary medicine in this area in Croatia.

Equine

It took a long time for the Clinics (especially the Clinic for Surgery, Orthopaedics and Ophthalmology) to equip in quality and adequate manner for working with horses as they were equipped to work in small practice. In addition, the decline in the number of horses was evident, so from about 30 thousand in 1990 the number fell to 7 thousand in 1996. Fortunately, after the 1996 the number of horses is constantly growing, so it is now about 18 thousand. The number of horses as patients is relatively small at our Clinics due to the aforementioned reasons. However, the contracts with private veterinary practices and the national stud farms, as well as the quality of staff at our clinics, give us an advantage over other participants in this veterinary practice. Our big advantage is a secured permanent admission of patients throughout the year, and the possibility of hospitalization of these patients which is unique in Croatia. Besides all, we still invest in all the resources to perform even better in the field of equine practice.

Production animals

For these animals, the clinics are permanently open and hospitalization is always possible. Cattle as the main representative of this category of animals in terms of patients, once were a large group of animals which were treated at FVMUZ Clinics. Now, it is not so because the number of cattle decreases in Croatia, so that the number of 550 000 cows before the war has fallen to only 130 000 cows. In addition, the problems that are known throughout Europe, such as low milk prices and the recession in general, reduced the number of these animals as potential patients. In addition, we would like to emphasize the high quality education of our colleagues in private practice field (this is an achievement of the FMVUZ) who routinely solve most problems. Unfortunately, the cattle with problems that are not considered to be routine, end up in slaughterhouses because it is too expensive for the owner to treat illnesses due to the aforementioned problems with milk prices. In addition, the number of patients was reduced because of changes in legal regulations in Croatia and certain jobs were seized from the veterinary profession. Clinical practice in diagnosis and treatment of pigs is mainly conducted through Mobile clinic and extramural classes as in the past. We would like to emphasize the well known fact related to large pig farms to which we no longer have access due to the well-known health protection reasons, that is, epizootiological reasons. It is interesting that there is a growing interest for work with pigs as an experimental animal's category. Sheep and goats occur sporadically as patients in Clinics and students are educated for practical training on this kind of animals through AMC and even more through extramural classes. Namely, breeding sheep and goats is still traditionally linked to certain Croatian regions that are further away from Zagreb.

Provide an indication in percentage terms of the proportion of cases that are primary (i.e. firstopinion), and referrals (provide a breakdown by species, if helpful). If the Faculty has a particular aim or policy as regards this mix, describe it.

Companion animals

Owners of the patients usually decide on their own to come directly to the clinics and ask for help in about 75% of the cases, first as an outpatient examination and after that, if it is recommended, to remain hospitalized. The remaining part, which makes up about 25% of the patients who came on recommendation of colleagues from external practices generally know that their pet would stay at the clinic, be subjected to surgery and therefore hospitalized.

Admission of patients to Faculty Clinics is not regulated by separate internal regulations. Approximately 50-75% of the owners of animals come directly to the clinic for diagnosis and treatment of animals. During the first visit, the owners of the animals are accepted at the Department of Internal Diseases, where, after checking the pet passport, the patients are distributed and, if necessary, referred to other clinics and ambulatory clinics (except in case of a definite clinical condition of the animal when it is directed to the specialist treatment).

During the triage, basic data on the owner and animal are entered, and they are available through Veterinary ambulatory protocol after referring to another clinic. Since there are about 40 ambulatory veterinary clinics in Zagreb, a good part of animal owners simultaneously use the services of the Faculty and other clinics in the city. The choice of ambulatory clinics and clinics in Croatia was determined by law only in the case of vaccination of dogs against rabies, and in this manner the Clinic for Infectious Diseases regularly vaccinates about 750 dogs per annum. Records of vaccination of dogs in Croatia are monitored by the "Lysacan" computer program, and changing of the ambulatory clinic in which the dog must be vaccinated has to be recorded in the program. Pet owners who do not use the clinic as their regular first choice, come to the Faculty because they were not satisfied with previous services provided by other veterinarians or because they were referred by their veterinarian. When a local ambulatory clinic refers them to Faculty, it usually sends a referral with accompanying documentation which is not mandatory, which means that the Faculty clinics do not insist on the delivery of the required documentation. In order to ensure a sufficient number of patients, the clinics of the Faculty "nurture" the cooperation (with signed contracts on cooperation) with several animal rights organizations. Such patients are admitted upon presentation of proper documentation or upon verbal announcement. If patients are diagnosed with diseases that should be suppressed according to the law regulations during their stay at the clinic, the clinic notifies the competent authority, i.e. a veterinary inspector, and continues with the patient treatment in accordance with relevant regulations and under his/her supervision.

Large animals

Almost all large animals are brought to the clinic by their owners without recommendations from the veterinarians from external practices. However, from medical history it is evident that these animals were often examined and treated by other expert.

All the patients that were in any way treated at Clinics and sent by field colleagues in private practices are directed back to them for further treatment, ensuring that they can consult clinic veterinarians by telephone, e-mail or any other way. Also, if the patient comes from the area where the Faculty has a cooperation agreement with a private practice, we try to encourage the owner to contact the colleagues whom we previously inform about the problem and possible additional treatment after examination or treatment at the Faculty Clinic.

Admission of large animals at the Faculty Clinic has not been regulated by special regulations, thus large animals are admitted for treatment with or without a referral form from a local veterinar-

ian. Since placing the large animals on the market in Croatia is regulated by the law, almost all the patients are admitted with obligatory basic documents (certificate of health). In case of an extremely urgent case, the supporting documentation (referral form and medical history) shall be submitted subsequently. If during their stay at the clinics, a patient is diagnosed with a disease that should be suppressed according to the law, competent veterinary inspector is notified, and the patient is further treated in accordance with relevant regulations, under the supervision of the inspector. Upon the completion of their stay at the clinics, large patients are released under the supervision of a veterinary inspector with the appropriate supporting documentation. If the animal was sent by a local veterinarian, the veterinarian is informed of the clinical status of the animal, possible continuation of treatment and further procedure needed.

Indicate what areas of clinical specialisation are covered, and the extent of the coverage (for example, a veterinarian with a particular specialisation may see patients in the clinic for one day a week, 3 afternoons, etc.).

As stated in section 7.1.5.1., there is a possibility for colleagues to come and stay at the clinics, but the veterinarian on duty at the clinic in question should previously be notified. Dermatology, dentistry, oph-thalmology, neurology and oncology are covered as specialisation areas.

Indicate the relationship the Faculty has with outside practitioners (in small companion animals, equines and production animals) in terms of matters such as referral work, providing diagnostic or advisory services for private practitioners, practitioners participating in teaching, holiday or 'seeing practice' work for students, feedback on the level of clinical training. Describe (if applicable) any other relationships with outside organisations that are routinely used to provide students with training (in particular practical training) in other clinical subjects (e.g. pathology work, interaction with state veterinary work).

In Croatia, specialized veterinary practices exist in the field of small companion animals. For the rest of domestic animals, veterinarian practice is registered as general practice; however there are a few veterinarians who deal with horses. For diagnosis and treatment of bovines, sheep, goats and pigs, the field practice is mostly carried out by veterinarians from former state veterinary institutions, which had been privatized after the democratic transition. Cooperation of all these veterinarians is quite good, since it involves a relatively small number of people working directly in veterinary practice, so they all personally know each other. These acquaintances insure that there is a satisfactory cooperation which becomes a bit more intense in small practices, in which most external private practitioners completed their specialist studies at the Clinics of our Faculty.

It is well known that during the holidays, when students are free from classes, some of them are voluntary work in private practice. This means that they are actually providing typical assistance services to veterinarians in the filed. Also, during the summer holidays students can voluntary work at FVMUZC with permission of the Head of Clinic.

Collaboration with veterinarian practitioners is mostly carried out in a way that the Faculty provides services in the field of diagnostics and treatment of animals as well as consulting services. This collaboration is partly official, but mostly it is collegial and personal. Official collaboration refers to implementation of diagnostic procedures for which laboratories of the FVMUZ are licensed. Competence and expertise of veterinarians is mostly below the level of clinical work at the Faculty, therefore there has not been an opportunity or a need for outsourcing in practical clinical training. Describe (if applicable) any other relationships with outside organisations that are routinely used to provide students with training (in particular practical training) in other clinical subjects (e.g. pathology work, interaction with state veterinary work).

Explained in Chapter 4, Section 4.1.3, 4.1.4 and 4.1.5.

Provide an outline of the administrative system(s) used for the patients, e.g. in terms of how case records are kept, how data are retrieved, whether systems are centralised, etc.

The programme "VEF Protocol" was designed in 2003 for the purpose of facilitating the record keeping on ambulatory and clinical patients in Clinics and Departments.

The programme is being used by the following Clinics and Departments:

- Internal Diseases Clinic
- Internal Diseases Clinic's Laboratory
- Surgery, Orthopaedics and Ophthalmology Clinic
- Department of Radiology, Ultrasound Diagnostic and Physical Therapy
- Department of Parasitology and Parasitic Diseases
- Department of Microbiology and Infectious Diseases with Clinic
- Department of General Pathology and Pathological Morphology

Software application is installed on fifty computers and there are 142 active users of the application. It uses central database on the computer (SQL-server) located along the other central computers which have constant supply of energy ensured. The programme and the database are protected against unwanted losses. The data entered into the data base are being stored in the back-up file at certain time intervals as well as on magnetic tape as a medium for permanent storage.

The programme is used via computer network in Ambulatory Clinics, as well as on other computers if there is a need or wish. The information on owners, patients and patient's cards can be updated from any computer in the network, and the data are stored in a central database.

The programme VEF Protocol has authorized access to data, which means that the user needs to log in with username and password on entering the programme. Simultaneous login for several users on one computer is enabled, in separate windows. Every user is a member of a certain user group and certain clinic (organizational unit), which enables selective access to data. This means that the user from the Internal Diseases Clinic can open only those patients' records that were entered at the same clinic, and depending on the user group, can or cannot update, for example, addresses, enter the clinical findings, change referent laboratory values etc. It is important to emphasize that the data on owners and their animals are entered separately from patients' records, so that the data on owners and animals entered in any clinic can be used on all clinics, while patient records data are visible only at the clinic that opened the record. Data on stationary patients are available to all doctors in order to enable the treatment in night shifts and on Saturdays and Sundays.

All the operations currently enabled by the program are offered in the basic menu. Those are: System Data, Work with patients (New entry), Overviews and printouts, Parameters. Every operation has dropdown menus with further options.

Quick access to individual patients and data on series of criteria are enabled in the Column beneath the menu.

Work with patients

When registering the owner and the animal, a questionnaire with necessary data is filled in (national). It is possible to update entries (such as change of address or telephone number of the owner, some characteristic of the animal that has changed – castration and such, changes in weight), with no need for entering all the data repeatedly. There are predefined forms for anamnestic data and laboratory findings with free data entry. After the first day of examination, each new entry is marked as "New data today", with record on date and time of entry.

Overviews and printouts

Printout of Referral forms in various forms is enabled for every organizational unit independently, 24hrs protocol, laboratory findings acquired from the laboratory, data on number, type and diagnoses of examined patients and issuing invoices. Billing is being done in cash, bank cards or cashless charge (transfer orders).

Overview of income enables income insights generated by a certain doctor/ordinarius in a certain period of time. Overview is broken down to performed service and billed service, because this way, income is recorded on every card. The basic presupposition is that a doctor cannot or does not have to charge his/ her every service immediately, so some other doctor or technician could do it for him. Data on issued invoices and income are visible to the accounting department, and they are directly transferred to the accounting software of the Faculty.

Printout of 24hrs protocol enables a printout of a form with basic data on the patient and empty table for entering necessary treatments on the patient in the 24hrs period, performed by a doctor on day or night duty.

Recording students who worked with the patient is enabled during work with students, with later printout of all the patients examined by a certain student and vice versa, which students processed which patient.

Parameters

Drop-down menu enables updates and corrections for series of data offered in the menus. In order to avoid repetition of certain entries because of grammatical or similar mistakes, individual changes can be made only by persons with certain authorizations, while other changes can be made by all users. The list of diagnosis is particularly sensitive, as well as physiological boundaries of hematologic and biochemical values for a certain type of animal. In the column Parameters, there are Type and breed, Colours, Places, Diagnoses, Services and prices, Address book and Borderline values of findings.

7.1.10 RATIOS

See the section 'Main Indicators' in Annex Ia for the figures needed for calculating ratios. Give the figures for numerators and denominators. The ratios should then be expressed by taking the numerator as 1.

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

P 11.	no. of students graduating annually ^{a)} = 98 = 1	Denominator
К I I,	no. of food-producing animals 166 1.694 seen at the Faculty ¹⁾	1.074
D 10.	no. of students graduating annually ^{a)} = 98 = 1	Denominator
κ 12,	no. of individual food-animal 5 202 53.082 consultations outside the Faculty ^{2) 3)}	53.082
R 13:	no. of students graduating annually ^{a)} = 98 = 1	Denominator
	number of herd health visits ^{3),4)} 537 5.479	5.475
R 14:	no. of students graduating annually $a^{a} = 98 = 1$	Denominator
	no. of equine cases ¹⁾ 284 2.897	2.657
D 15.	no. of students graduating annually ^{a)} = 98 = 1	Denominator
R 15:	no. of poultry/rabbit cases 754 7.693	7.693
P 16.	no. of students graduating annually $a^{a} = 98 = 1$	Denominator
K 10.	no. of companion animals ¹⁾ 37 216 379.755 seen at Faculty	379.755
D 17.	no. of students graduating annually ^{a)} = 98 = 1	Denominator
K 17.	Poultry (flocks)/rabbits 5 0.051 (production units)seen ^{2) 3)}	0.051

^asee Annex Ia, 2.2.b; ¹⁾Table 7.3, average; ²⁾Table 7.4, average; ³⁾where applicable use or add information provided in chapter 7.1.8.2; ⁴⁾see 7.1.8.1

Table 7.6: Animals available for necropsy

R 18:	no. of students graduating annually no. necropsies food producing animals + equines $= \frac{98}{135} = \frac{1}{1.377}$	Denominator 1.377
R 19:	no. of students graduating annually a) no. poultry/rabbits (1) = $\frac{98}{220} = \frac{1}{2.244}$	Denominator 2.224
R 20:	no. of students graduating annually a) necropsies companion animals 1) = $\frac{98}{735} = \frac{1}{7.5}$	Denominator 7.5

^a)see Annex I, 2.2.b; ¹)Table 7.3, average; ²/Table 7.4, average; ³where applicable use or add information provided in chapter 7.1.8.2; ⁴see 7.1.8.1

7.1.11 OTHER SPECIES

Indicate how the Faculty deals with fish and other food producing species

The organization of education and acquiring of practical skills needed to work on the issues of fish, bees and game is provided through obligatory courses: *Biology and Pathology of Aquatic Organisms, Biology and Pathology of Beneficial Insects and Game Breeding and Management.*

<u>Fish</u>

Practical training outside the Faculty is held at one carp farm and one trout fish farm. At the largest freshwater fish farms in Croatia which cooperate with the Faculty on the basis of a contract ('*Fish farming Poljana*' with the capacity of approximately 700 tons of fish annually and '*Fish farm*' Gacka with the capacity of approximately 15 tons of trout annually), the students are obliged to attend 2.5 hours of field clinical exercises twice. The aim of the exercises is to inform the students on technologies in carp and trout farming, giving them the opportunity to gain insights on the importance of timely identification and diagnosis of the signs of diseases, learn the proper way of collecting and submitting materials for laboratory testing as well as gain knowledge on prevention and treatment of fish diseases.

<u>Bees</u>

Practical trainings outside the Faculty are held on two representative stationary apiaries (each with approximately a hundred of bee colonies) which cooperate with the Faculty on the basis of a contract (*Family farm Tomislav Žorat* and *Family Farm Velimir Glumac*). The students are obliged to attend 4.5 hours of field clinical exercises twice during which time each student independently inspects a bee colony, diagnoses possible signs of diseases and learns the proper way of collecting and submitting materials for laboratory testing as well as gains knowledge on prevention and treatment of bee diseases with the aim to improve the development of beekeeping.

<u>Wildlife</u>

The Faculty took a concession of the state's open hunting ground No I/3 "Črnovšćak". During extramural training, students participate in the implementation of natural breeding of game. This includes planning and positioning of feeding sites and salt lick for wild animals, sanitation of facilities and presentation of food. Students also learn how to plan and design crop protection in order to reduce/prevent damage from wild boars. Directly in the field, students evaluate natural characteristics of the hunting area using the method of capability evaluation. Knowledge acquired this way is later implemented in calculation of productivity of hunting area, calculation of animal parent stocks and growth and development of the stocks through the years. For their training, the students use common dear as a representative of large game, and brown hare as a representative of small game. Finally, the students participate in autumn counting of the game and learn to assess the health status of game by observation and collecting samples for implementation of health surveillance. Also, the students visit breeding facilities for pheasants and partridges at the pheasant farm "Zelendvor", where they learn the specifics of phases of pheasant breeding. Under the supervision of veterinary service, pathoanatomical section is conducted on carcasses of chicks of pheasants and partridges died from the consequences of technopathies. The Faculty cooperates with the fallow deer farm "Zidina" which is located within the PZ Paddock Višnjica. Students in the field exercises produce and keep track records for deer game with monitoring of production and breeding characteristics of female deer, monitoring the production characteristics of fawns and continuing maintenance of traceability of breeding quality of does and fawns. As for male deer, the students participate in assessment of appearance and development of antlers and evaluation of male deer suitability for breeding. During the summer, the students participate in implementation of drench on the basis of the annual plan.

7.2 COMMENTS

Feel free to comment on all data provided in this Chapter.

Data shown give a realistic overview of the situation at the Faculty which is progressive and affirmative at the maximum in every respect. However, it is partly a reflection of the process which could not be influenced, namely the Bologna process with its good, and sometimes less good solutions. Also, there is a drastic fall in the number of cattle and horses, restructuring of cattle breeding, deterioration of small farming and decreased number of farmers who are traditional users of veterinary services. Also, we have to mention legislative changes occurred due to adjustments for the EU which have not been prone to our profession; preferring other professions and thus often leaving us aside.

Comment on major developments in the clinical services, now and in the near future.

We should continue to follow the positive trend of equipping clinics and pay more attention to the improvement of Mobile clinic. Also, the Clinics must find a way to increase the number of large animal patients. Continuous training for *Diplomate* status should be enabled for colleagues who work with large animals. All mentioned facts call for reorganization of Clinics, with the aim to organize work according to animal categories and abandoning the organization according to fields.

Comment on local conditions or circumstances that might influence the ratios in tables 7.5 and 7.6.

The data in Table 7.5 and 7.6 showed no obvious trend of decrease in the number of all species of domestic animals at the FVMUZ Clinics, which has occurred in the last ten years for the category of food animals. There is an effort to keep the patients and attract new ones, but it is very difficult because the structure of animal owners has changed, as well as because of a way of keeping the animals which has changed with the transition from individual to farm breeding. In a way, the Faculty's Clinics are becoming an exclusive place for treatment of exceptionally valuable cattle, which represents a basis for livestock breeding in the country. This is the reason for numerous contracts with private veterinarians in the field with whom the cooperation is satisfactory. With mutual system of ambulatory clinics and extramural training, the usual practical training of students for this category of animals is satisfied.

7.3 SUGGESTIONS

If the denominators in tables 7.5 and 7.6 for your Faculty are not meeting the range as indicated in Annex I, Supplement A, what can be done to improve these ratios?

Denominators in Tables 7.5 and 7.6 showed positive results for our Faculty. However, we believe that these results will be even better once the Faculty farm is built. For now, the construction works are in progress, the issue of the lot on which the future farm will be built is solved, and project documentation is being prepared. Unfortunately, the economic recession has been aggravating and prolonging the realization of the project in financial terms.

CHAPTER 8. LIBRARY AND LEARNING RESOURCES

















Chapter 8. LIBRARY AND LEARNING RESOURCES

8.1 FACTUAL INFORMATION

8.1.1 LIBRARY AND OTHER INFORMATION TECHNOLOGY SERVICES

At the time the School of Veterinary Medicine in Zagreb was founded at Savska cesta 16 in Zagreb in 1919, a library was simultaneously established as its integral part. According to the Law on Libraries ("Official Gazette" 105/97), the Faculty Library was included in the *University of Zagreb Library System*. Nowadays, the Library is located at the same building as the Faculty, on the ground floor of the main building of the FVMUZ at Heinzelova 55. According to the Regulations on Registry of Libraries and Libraries within the City Office of the Culture of the City of Zagreb, the **F**aculty **L**ibrary (FL) was registered under the No 752.

During reconstruction of the main building of the FVMUZ in 1940, special premises were designated and designed for the purpose of the Faculty library and put to use. Nowadays, the FL is an organizational unit of the Faculty for educational purposes, that is, it operates as an internal library. FL is one of the basic infrastructure parts for teaching purposes as well as scientific and professional activities. Library area is composed of reading room for students, a reading room for teachers, a working area for librarians and employees and a storage room for books and journals, covering in total the area of 284m². Also, apart from the reading room within the library, the students are free to use a special classroom built and organized under the total area of the Library.

From its founding, and ever since, the FL has fulfilled its basic task to act as an organizational unit of the Faculty where all the information relevant for veterinary science are gathered, thus becoming an essential place for all the users involved in science. The main purpose of the Library is putting the stored book stock at use.

Activities of the Library serve for the following purposes:

- building and maintenance of book stock (procurement of books, care and maintenance of books, physical protection and restoration of books, discard of redundant book stock);
- design and maintenance of library catalogue (cataloguing);
- professional services (inventory services, classification, content analysis, technical maintenance) of the stock according to bibliographic methodology;
- design of catalogue and data base, that is bibliographic information system;
- managing storage of separate collection of graduation, M.Sc. and Ph.D. papers and thesis (dissertations);
- active participation in user's education (providing information by telephone, assisting in data search, search retrospective);
- selective dissemination of information, interlibrary loans according to the rules of interlibrary loans, the library serves as a mediator between users and other libraries and institutions in providing the students information on other libraries and institutions available;
- providing professional veterinary-bibliographic information related to didactic and scientific purposes according to availability of information in internal and external data sources;
- revision and write-off of book stock;
- networking of the library;
- usage of book stock (for reading in the reading room or borrowing);
- providing help to users in data search and usage of library resources as well as other library activities;

- providing expert information (personally or by telephone/mail) as well as help in selection of technical and scientific literature covering all the areas of veterinary medicine;
- distributing didactic material published by the Faculty to domestic and foreign libraries (*Commonwealth Agricultural Bureau International*);
- providing individual expert consultations on usage of data source (library staff does not conduct group education in the area of library-bibliographic informative activities);
- enabling e-learning and access to internet on computers located in the library;
- organizing education of library staff on usage of professional literature off line and on line;
- providing photocopying services for teachers;
- organizing exhibitions of didactic material and material acquired through donations according where possible.

Students of the FVMUZ become users of the FL upon enrolment at the beginning of winter semester. The students are required to show their student transcript book and their enrolment number for the current academic year. Student may loan books within the library premises just by showing their student card (x-card). Student book loans are recorded at two levels: on the records of each student classified according to study year and electronically at the same time.

Book loans by non-students and Faculty teachers are recorded at separate computer list.

Orders of foreign professional literature are performed according to the requirements and financial resources. All the requests for foreign professional literature procurement are reviewed by the Library Council which comprises a list for Dean's approval.

Users have the access to professional literature from all over the world consisting of numerous highly quoted veterinary periodicals as well as the most important secondary sources (*Science Citation Index, Current Contents* etc.) Veterinary periodicals archived in the FL could be categorized in several ways. According to their topics, they are divided into general veterinary periodicals and (more or less) specialized veterinary periodicals. According to the methods and covered topics, they can be scientific, technical and combined. That means covering the results of scientific research or professional papers (case analysis, experience with drug usage, etc.), or both. Archived veterinary periodicals are also categorized according to the publishing media (electronic or network versions). Croatian veterinary periodicals are available for free usage on the internet portal *Hrčak* (http://hrcak.srce.hr/).The most famous platform for free access to international veterinary periodicals is *PubMed Central of the United States National Library*. For the last decade, the Library collects all the publications of the FVMUZ, as well students', masters and Ph.D. theses, thus creating a fund which reflects intellectual potential of the employees, building a foundation for new generation. However, a subscription is needed to access the major number of veterinary periodicals. The Ministry in charge ceased to co-finance the procurement of professional and scientific veterinary publications the Faculty had been subscribed to for decades, as early as in 2008.

The FVMUZ is the founder and owner of the scientific magazine *Veterinarski arhiv* (*Veterinary Archive* (*VA*), catalogued under number ISSN 0372-5480) included in the *Science Citation Index – Expanded* (SCI-Expanded) published by the FVMUZ six times per year. The Faculty employees have published numerous books and text books.

Veterinary Students' Association *Equus* edits and publishes scientific journal *Veterinar*. The journal received special Rector's award this academic year.

Croatian Veterinary Association 1893 - *Societas Veterinaria Croatica* (SVC) is a founder and owner of the professional journal *Hrvatski veterinarski vjesnik* - Croatian Veterinary Record (CVR) and magazine VETIN. The first journal *Veterinarska stanica* (VS) was published as a bulletin of the former Business Association of Veterinary Stations in the second half of 1970. Since that time, the journal has changed several pub-

lishers. Croatian Veterinary Institute became its publisher on January 1, 2009; with Professor Marko Samarđija from Reproduction and Obstetrics Clinics as the editor-in-chief of the journal since 2007. Since then, the journal is being published six times a year on regular basis, it is professionally designed with increased number of pages.

The magazine Meso (Meat), the first Croatian magazine on meat was first published in November 1999 with the purpose of publishing scientific and professional topics related to the wide area of safety and quality of meat and meat products. This includes promotion of findings in the area of hygiene and meat technology in compliance with modern technological processes and production trends as well as control in accordance with market demand and interest of consumers. The magazine primarily covers topics related to control of all forms of food - transmitted pathogens, control of raw materials, technological production processes as well as preparation of food up to its delivery to consumers. It also includes all the causes of food contamination (microbiological, chemical and physical), control of technological processes of production, conservation practices, evaluation of quality and its impact on the environment as well as overall improvement of food industry. Topics are covered from the scientific, professional and layman point of view. The magazine is published bimonthly, six times a year, and is financed by subscribers, advertising and by financial support of the Ministry. Received manuscripts are reviewed. All articles are published in Croatian and English. Editorial board of the magazine reserves the right to adjust the style of the articles published. The publisher is not responsible for the views expressed in articles published. Papers published in Meso magazine are regularly indexed in the following databases: CAB Abstracts, Food Science and Technology Abstracts, Zoological Record, Global Health. Technical editor and co-editor of the journal is an employee of the Faculty of Veterinary Medicine: Professor Lidija Kozačinski, Department of Hygiene and Technology of Foodstuffs of the FVMUZ.

Since academic year 2000/2001 when the first issue of the *Chronicle* of the FVMUZ was released (catalogued under number ISSN 1333-8358), the Library has been publishing its operation plan for current academic year in the Chronicle. So far, 11 Chronicles have been published.

Since its founding, the majority of Library's book stock is veterinary publications available to general scientific community, especially to students, teachers, scientists and users of biomedical and health science in the field of veterinary medicine.

FL central part consist of:

- Collection of foreign journals covering the areas of preclinical and clinical sciences;
- Collection of domestic journals in the field of veterinary medicine;
- Reference Collection (the most important biomedical secondary and tertiary publications);
- Collection of monographs;
- Collection of doctoral and master's theses defended at the Faculty.

The FL is open to all the persons seeking information on veterinary medicine: The free access provides the following:

- usage of all the library resources inside the reading room;
- text books on loan for usage outside the library premises;
- data base search;
- photocopying journal articles;
- training users to use various sources of information.

The FL has seats for 25 students in its reading room, as well as 10 more within its premises. Apart from the reading room, the students are free to use a special classroom located underneath the library premises. The special classroom was built and organized in 2002, in the basement, below the total area of the present Library. Since 2002, Information Department of the Faculty is located within the premises of the FL.

Since the foundation of the Faculty, certain Departments and Clinics of the Faculty have founded their own libraries with didactic, scientific and professional material from their areas of operation. There are 23 such libraries operating at the moment. The libraries within Departments and Clinics are separated premises with no professional librarians employed.

The FL has its own digital data base of didactic literature (textbooks, teaching notes and handbooks) since 2008. The library uses specially tailored electronic system *Medved* for processing of the overall library material. The Medved System comprises of a book module, "cibiga" and periodicals, as well as supporting modules *barcode*, *library on Internet* Module *KNJIGA* (book) comprises software modules that enable expert library processing of monographic material and cover all the expert tasks regarding the processing: inventory, cataloguing, classification, subject processing, searching, possibility of displaying a book by certain author with inventory numbers and total number of volumes, possibility of displaying of total number of books and volumes in the fund, printing of inventory forms, inventory books, lists of write-offs etc. Data search is enabled by the author, title or subject. There are other service applications within this unit for the purposes of maintaining databases and data transfer. All the data in databases can be corrected and updated. This module is widely used in library work by all the users on daily basis.

Doctoral thesis and master's thesis material is not included in this system.

Module *cibiga* is an application for tracking circulation of the material, comprising of: entering and analysis of the users, issuing, adjustment of the deadline for return of the material for one month + one month extension, returning of library material, search of the fund with marked status of library unit. Module *barkod (barcode)* enables the link to the number of the member, enabling accuracy and speed in the process of issuing and returning of the material.

Accompanying module *knjižnica na internetu (Library on internet)* enables the usage of existing data on library database on the internet, via web pages of the Library.

Module *časopis (journal)* is intended for the processing of periodicals: receiving, inventory, cataloguing, classification, subject processing.

There is an additional module, *blagajna* (cash register).

It is necessary to emphasize that the software system *medved* has a finished module *knjigomat* for simple returning of loaned material.

There are inventory books kept in the Library where all the material comprising the literary fund of the Library has to be entered. Complete library material is entered into the written Inventory books B; C; D; E and is being entered into the computer in electronic form. According to the data for the year 2011, the Library has 36.430 library entries in the inventory book, while there are 34.274 computer entries. Valuable and rare material is stored in protected collections and departments (such as Faculty Museum). The number of inventory items from the books is not in concordance with the computer data due to the different manner of entering data.

Other ICT services

Information and communication technology (ICT) is indispensable part of the veterinary education on the FVMUZ, primarily for the numerous possibilities which that technology brings to the teaching process. Awareness of the importance of ICT is supported by the constant development and frequency of usage of ICT in every segment of the work, whether it is concerning teaching, professional or scientific

aspect. During the past couple of years, with adoption of E-learning Development Strategy and systematic introduction of LMS systems in the teaching process on certain academic years, not only the advantages were recognized, but also the problems in introduction and application of new technologies. Expected resistance to the changes, along with the fears of the new e-environment are the most common reason for slow response from our teaching staff in pre-clinic teaching (lesser part) and clinical teaching (greater part).

The FVMUZ has been applying some forms of e-learning in teaching for number of years, like PowerPoint presentations or publishing teaching material on Faculty's web pages. Estimating the level of application of e-learning on the FVMUZ, we correspond to the application of mixed teaching style where LMS has a central position, acting as the additional helping technology in the process of transfer of knowledge on one side, and quality change on the other side.

The Faculty has three ICT-enabled classrooms, equipped with modern equipment. All the classrooms are equipped with computers for students, a computer for teachers and a LCD projector.

There are four rooms with 72 computers for the needs of students (Department of Animal Husbandry, Hall A with 25 computers and Hall B with 15 computers, Department of Pathophysiology, Hall C with 16 computers, Reproduction and Obstetrics Clinic, Hall D with 16 computers, the FL with 8 computers). Computers in the Department of Animal Husbandry are also used outside classes, while the computers in the Library and Student Facilities are available to students within the working hours of the Faculty. All the computers used in classes have been procured within the last three years, while the computers in the Library and student facilities have been procured within the last five years.

Videoconferencing equipment was procured in cooperation with CARNet, enabling hosting and following distant lectures, as well as hosting meetings via conference calls.

There is a wireless computer network established at the Faculty which enables Internet connection for students, our and visiting teachers' laptops. Wireless computer network is available in all major facilities (library, big hall, seminary halls, dean's office, teacher's facilities).

All the equipment functions appropriately and is being regularly renewed, upgraded and serviced.

Main Library.

Is this specific to the veterinary training establishment?

Tracking system for the needs and publishing of teaching material for veterinary medicine education has been developed at the Faculty during its founding. The FL has been actively cooperating with teachers taking into consideration their suggestions and choice of teaching material which follow the performance plan for every class in the study programme. The **C**ouncil for **L**ibrarian and **P**ublishing **A**ctivities (CLPA) is helping in the process in accordance with its duties. The Council operates according to the Rule Book on Activities which has prescribed the procedure of submission of proposals and gathering of necessary documentation, and according to the Rule Book of University Teaching Material by UNIZG (dated May 1, 2010) which established the term of technologically neutral and media independent teaching material used in the teaching process by the components of the University. The Council is actively participating in proposing and renewal of book stock of the Library for the needs of students, teachers and scientists, and discuses publishing and informatics activities on the Faculty.

It is necessary to emphasize that all of the mandatory student materials, proscribed by the teachers of the Faculty, is available in the reading room of the Library, and that in the last decade, the Faculty intro-

duced the practice to buy 50 copies of every study book for the students. This practice is not common at other faculties in Croatia. Also, the Faculty procured 80 copies of newly published **V**eterinary **H**andbook (VH), issue 6 (published in 2012), despite its high price. Among 122 authors listed in the VH, 98 are from the Faculty staff.



As stated earlier in this chapter, most of the book stock of the Library is related to teaching material, as well as the material with topics related to the veterinary profession.

Table:	The number	of items	of mandatory	literature st	tated by yea	rs in the	information	package	stored in
the FL	of FVMUZ								

Year of study	Number of titles, mandatory literature	Number of copies, mandatory literature
1st	46	3236
2nd	52	1281
3rd	35	796
4th	43	770
5th	17	409
6th	19	552
5th-6th mandatory elective courses	30	377
VH 2012.g	1	80
TOTAL	243	7501

In the period from 2006 to 2011, the productivity of teachers of the Faculty excelled in the field of publishing of University textbooks related to the field of veterinary medicine, with 24 new books published in the aforementioned period, almost twice the amount from the previously recorded period. Besides publishing, the teaching staff was involved in publishing almost 60 proceedings from domestic and foreign veterinary congresses. Publisher for the large number of publications was the Faculty itself. Regarding the field of veterinary medicine, teaching staff of the Faculty published around 60 professional titles, textbooks for secondary education, bibliographies regarding certain anniversaries of Departments, brochures, historical reviews, other publications printed for the anniversaries and monographs. We would like to emphasize the monograph published for the 90th anniversary of the FVMUZ (1919 – 2009), the occasion for which a bilingual monograph "Collection of Veterinary Instruments from the Museum of Veterinary History" was published.

Book stock in the FL, apart from the mandatory textbooks, comprises literature aimed to assist student education by widening their professional knowledge, mainly from the fields related to veterinary medicine. There are, for example, proceedings of veterinary medicine congresses and symposiums, bibliography of expert periodicals, encyclopedias with similar content, veterinary and other bilingual dictionaries of languages of the main EU countries etc. Apart from the mandatory teaching material authored and co-authored by the teaching staff of the UNIZG, especially valuable book stock related to the contemporary international literature from the field of veterinary medicine was obtained through the donation SABRE-Zagreb, and the one obtained by student action VetLiber in the years of 2002 and 2003. The list of titles is published on the web pages of the Library <u>http://www.vef.unizg.hr/lib/vetliber/index.htm</u>. Valuable issues of the latest textbooks from USA, with high standards for higher education in the field of veterinary medicine, equipped with electronic issues on CDs are especially valuable source of information during the times when financial capabilities for procurement of literature are limited. SABRE-Zagreb is a non-profit association for cultural, educational and humanitarian activities which is active for 22 years on the territory of Republic of Croatia. The association procures, chooses and disseminates books, magazines, periodicals and other educational material published in USA in cooperation with Sabre Foundation, Inc from Boston, USA and USAID. The contract for the donation of books comprises a list of donated books and stipulations on the obligation of the Faculty to list, process and label the books on the shelves with the label "Books obtained by the association SABRE-Zagreb". It also prescribes that the books should not be taken outside the premises of the library.

Also, in agreement with other veterinary medicine faculties in the region: Beograd, Ljubljana, Sarajevo and Skopje, the library staff had initiated the exchange of textbooks. Wherever possible, librarians are trying to obtain appropriate veterinary medicine material free of charge, at least one copy, in order to enrich the book stock and enable variety of information for the users.

Veterinary medicine book stock is established and maintained mostly in native language, Croatian, which is important for preserving of the national identity and veterinary publishing activities in Croatian veterinary profession.

As a separate information we would like to state that veterinary materials for treatment of animals had been published during history, from 17th century onwards, long time before the FVMUZ was established. As an illustration, the first veterinary material in kajkavian dialect (a regional variation of Croatian language), at that time the official Croatian language, was published in the year 1687 – Songbook by Juraj Šćrbačić, with separate part called Koinszka Vrachtva, which was transcribed to standard Croatian language in 1970 by esteemed university professors of FVMUZ.



The first veterinary paper published on kajkavian variation of Croatian language (published in 1687)

Also, after the Faculty renewed the IT infrastructure, some Departments or Clinics started to publish mandatory material that can be borrowed from the Library on their web pages, along with the texts necessary for the tuition.

ls this common to two or more establishment

The Committee for University-Teaching Materials is a working body of the UNIZG which discusses the proposal for new teaching materials for the constituent units of the University, one of which is the FVMUZ. Upon approval of the proposal, the Committee undertakes the review procedure, and after the agreement is reached and the reviewers grade the proposal favorably, the proposal is being submitted to the Senate of the University of Zagreb. By decision of the Senate, approved teaching materials are awarded the title *MANUALIA UNIVERSITATIS STUDIORUM ZAGRABIENSIS*. The Committee currently comprises seven members, representatives of various faculties within the UNIZG, biomedicine group of faculties, which is also represented by a member from the FVMUZ. The basic document which proscribes the duties of The Committee are Regulations on University Teaching Material, University of Zagreb, issued in 2010.

As seen in a previous paragraph, the procedure of publishing university teaching material requires special procedure proscribed by the University prior to publishing approval with the aforementioned qualification. Recently, several university teaching materials written by our teaching staff were published as university teaching material for several universities such as Zagreb, Osijek, Zadar, Mostar and this is noted in the teaching materials.

The care of teaching staff for contemporary and wide-ranged use of teaching material abroad is best described in the fact that, for the last decade, the teaching staff members of the FVMUZ have been active authors or co-authors of foreign veterinary books and teaching materials, mainly in English language.

Full time equivalents of part time employees Number of full-time employees

Working places and needed number of employees are determined according to the Law on Libraries and Standards for Higher Education Libraries, regulated by the Rulebook on Classification of Working Places of the Faculty.

Employees of the Library:

University education (VSS): Đurđica Stubičan, DVM, PhD, higher librarian – head of the library. University education (VSS): Helena Ivančić, teacher with a degree in librarianship. Secondary school or higher education (SSS/VŠS): Martina Jović, bacc. oec., assistant librarian

Opening hours of the library: workdays from 8 AM to 4 PM (Monday to Friday). Opening hours of the Library correspond to the working hours of the Faculty throughout the year. **Address:** Heinzelova 55, 10000 Zagreb **E-mail:** <u>knjiznica@vef.hr</u>

Librarians are trying to satisfy professional bidirectional communication with the users in their everyday work, both in direct contact or by phone and e-mail.

Lifelong education of librarians is focused on actual and necessary expert education according to the unique needs of their work. Updates of necessary knowledge are available on expert meetings as well.

Number of journals received each year as hard copies Numbers of full access electronic journals

Book stock regarding scientific periodicals in the last decade has suffered a great delay concerning procurement of new titles which could have been used for obtaining much needed information on contemporary teaching.

The reason for this are high prices of international scientific periodicals, and the fact that the Ministry cancelled co-financing of procurement of veterinary professional and scientific titles in 2008, which Faculty had been receiving for decades. Therefore, the students, teaching and scientific staff of the Faculty were channeled to use databases procured by the Ministry for the whole scientific community. Through the aforementioned databases, some of the international periodicals have made integral materials available.

The library is trying to obtain Free Trial usage permissions for certain databases, especially the significant one for the veterinary profession such as *CABIVetMed Resource data base, Animal Health* and *Production Compendium – interactive encyclopedias*, and tries to use offered *Free trial* possibilities, such as *MEDLINE Complete*. Here is the list of computer databases available to teaching and associate staff and students:

- Ovid
- PERO: pretraživač elektroničkih izvora online (search engine)
- Katalog elektroničkih časopisa dostupnih u zbirkama nabavljenim za potrebe visokoškolskih i znanstvenih ustanova Republike Hrvatske (catalogue of electronic periodicals available in collections procured for the needs of higher education and scientific institutions of the Republic of Croatia)
- CAB Abstracts
- ISI Web of Knowledge
- Centar za online baze podataka (CARNet) baze podataka za istraživačku i akademsku zajednicu (Centre for online databases (CARNet) databases for researchers and academic community)
- Science Direct
- EJOL Electronic Journals Online Library Institut R. Bošković
- PubMed at National Library of Medicine (Medline)

Nowadays, Clinics and Departments of the Faculty independently procure international scientific periodicals, choosing the most contemporary ones needed for their work, or are provided with subscriptions along with membership in international professional associations. The Library does not have active list of aforementioned periodicals.

Availabilities for online literature search Availability of textbooks

As previously stated, the access to the library stock is free, apart from the especially valuable part linked to the professional and scientific work of the Faculty, or the part of special history, culture or material value. That kind of material is available for inspection and reading under supervision of a librarian.

A part of the library stock available under supervision of a librarian that cannot be used outside the library is that of SABRE donation, VetLiber 2002, 2003, doctoral theses, masters' theses, graduate thesis, especially valuable books and important historic material regarding the Library and the Faculty.

With the implementation of new technologies, many services became available on the Internet. Library web page is available through e-interface <u>http://www.vef.unizig.hr/lib</u>, maintained by the IT Department in coordination with librarians and taking into consideration the needs of the Library. The IT Department

is in charge of user's register. By means of this service, the users can obtain information on the following: content and ways of using Library's expert material, recent and expert information regarding the Library and information the Library gets via e-mail. When information relevant to students and teaching staff arrives, it is distributed to them through this service. Also, in case when Library finds information useful or necessary, librarians request the electronic version of information in order to forward it to the large number of users of the Faculty.

Students have the following means available online:

- Online catalogue of the book stock in the Library
- VetLiber 2002, 2003 list
- Sabre donations
- Graduation thesis
- Links to more important libraries
- Links to important interfaces that enable visitors to get important general and veterinary, as well as similar, sources of information
- Interface for Faculty *magazine Veterinarski arhiv*, the only Croatian veterinary magazine online <u>http://www.vef.hr/vetarhiv</u>

Number of student reading places/Library opening hours

There are 25 seats for users of the reading room, as well as dozen more within the Library premises. Weekly opening hours of the Library are from 8 AM to 4 PM. Opening hours of the Library are coordinated with the working hours of the Faculty, according to the obligation proscribed by the Faculty. During opening hours, users are free to use computers and material in the Library. It is not planned to obtain *Free trial* usage of databases during holidays due to the lesser volume of usage. Computers in the Library are used for production of any kind of written material and searching of catalogues and other data available on computers, for the sole purpose of study and scientific-research.

Indicate how facilities are used by students

Borrowing of expert veterinary material and it's availability in the Library or by online search is enabled for the students on the computers located in the Library. Librarians help the students by indicating reliable sources of information to the students. Availability of the integral content of information depends on the possibilities offered by the owner of the sources of information, paid sources of information (for example, in case the Ministry paid subscription), *Free trial* sources, sources of information on the Internet checked as free of charge by librarians or referrals.

Work with users is carried out through interactive communication. The leaflets situated by the entrance inform the students and other users on Library's actions such as *free trials*, exhibitions, information from the **N**ational and **U**niversity Library (NUL), book promotions at the Faculty and similar. Interactive communication is always present between the users and librarian.

Besides the Library premises, students are free to use Faculty facilities where collections gathered by efforts of teaching staff are displayed. We would like to single out several facilities at the Faculty where museum collections are stored.

MUSEUM OF VETERINARY MEDICINE HISTORY (MVMH)

The **M**useum of **V**eterinary **M**edicine **H**istory (MVMH) was established in 1936 by a Decree. It is functioning as a part of the Chair of History of Veterinary Medicine. There was a re-organization of teaching units in 2005 and establishing of the Department of History, Ethics and Sociology of Veterinary Medicine (Department of History and Ethics of Veterinary Medicine since 2008). The MVMH remained a part of the Department. As stated before, in commemoration of 90th anniversary held on November 13th 2009, the FVMUZ printed an addition to the knowledge on history of veterinary medicine in Croatia a "Collection of Veterinary Medicine Instruments from the MVMH ". The processed collection is situated in the MVMH at the FVMUZ, established by the Decree in 1936, functioning as a part of the Department for Veterinary Medicine History. The collected stock in the Museum is sorted in sections of archive stock, veterinary medicine and similar texts, collection of veterinary medicine instruments and collection of horseshoes. Veterinary medicine instruments that were most significant to the development of veterinary medicine science and practice are described in the published monograph.



MUSEUM OF PATHOLOGICAL ANATOMY (MPA)

Museum collection has been situated in the adapted connection annex of two rear wings of the backyard building, on the second floor since 1952. With its rich collection of preparations (around 3.000) it can be described as one of the best equipped pathological and anatomical collections in the Europe, not only according to its quantity, but also by its numerous rare specimens. Besides the collection of macroscopic preparations, there is a collection of histological material blended in paraffin, as well as histological preparations. The Department has a collection of enviable documentation material described in dismembered and histological protocols. This written material actually shows the real development of pathological anatomy and histology, as well as expert and scientific work of the Department. The volume of this written documentation shows the intensity and efforts of the staff of the Department in the field of veterinary pathology and veterinary profession in the country.



MUSEUM OF THE DEPARTMENT OF ANATOMY, HISTOLOGY AND EMBRIOLOGY (MDAHE)

Throughout the years, the Department of Anatomy, Histology and Embryology has assembled a significant number of skeletons of various animal species (primarily mammals and birds), which are exhibited in the department's museum on the first floor of the building.

Subsidiary libraries of the Faculty

Departments' and clinics' libraries had been established mainly during the years of foundation of a certain department or clinic which independently maintain their own libraries. Each of these libraries has a separate room with separate library stock and possibilities for work. With all the departments and clinics, these libraries are available to users mainly during working hours of the Faculty.

The main library and 23 departments' or clinics' libraries are not connected by network, so the Library does not have the complete data on their library stock. Each Department or Clinic independently runs its library and proscribes the availability of their library stock, mainly during working hours of the Faculty. Most of them have separate premises for the library fund and work, but not all of them have a professional librarian employed.

8.2 COMMENTS

Investments in library stock depend on means and financing of the Faculty for that purpose. The library has been trying to use convenient means of obtaining sources of information crucial to its work and the needs of its users.

Each Department/Clinic of the Faculty has its own library premises at disposal for students and teaching staff. Nevertheless, there is a need for investment in computerization of the central Library as well as the libraries of departments and clinics. The usage of the Library and its computers are quite limited for independent study.

Library activities require at least one highly qualified worker – veterinary informant working in the Library, considering the large amount of sources of information, choice of quality information for education of students and a large number of everyday users.

The Library does provide group training for user, but it educates the users individually within the process of everyday communication with users, due to the current organization and possibilities for such training within the Faculty.

Due to the free access of users to the library stock, a part of it is protected in a manner that it is available for use only under the supervision of a librarian.

8.3 SUGGESTION

There are no suggestions.

CHAPTER 9. STUDENT ADMISSION AND ENROLMENT





Presentation of the FVMUZ at 16th and 17th UNIZG Fair 2011 and 2012

Chapter 9. STUDENT ADMISSION AND ENROLMENT

9.1 UNDERGRADUATE COURSES

9.1.1 UNDERGRADUATE STUDENT NUMBERS

Table 9.1 asks for numbers of undergraduate students in the veterinary training institution. This means students enrolled for undergraduate training and paying the corresponding tuition fees (if applicable), except for those students who do not participate in the teaching offered. Some veterinary curricula require students to successfully complete all courses presented in anacademic year before they can start the subjects in the following year. In other establishments students have to complete all the subjects in the curriculum before graduating, but can do so in a more flexible way. In the latter instance, it may be difficult – perhaps impossible – to place some of the students in a specific year of the programme. If this is so, table 9.1 may: Be omitted, or be an approximate figure, or be calculated byreference to the course of year that corresponds to the largest numberof subjects taken.

MNY: 6 years

Maximum duration of the study is 12 years. Students maintain their status eight years after the enrolment according to Article 68 of *The Regulations on Integrated Undergraduate and Postgraduate Study*, Article 54 of *The University of Zagreb Statute*, Article 14 of *Regulations on Undergraduate and Postgraduate Study of the University of Zagreb*.

Undergraduate student composition in year prior to visitation	
Total number of undergraduate students	613+35*
Total number of male students	202
Total number of female students	411
Foreign students	5
- from EU countries	4
- from non-EU countries	1

Table 9.1: Undergraduate student composition in year prior to visitation

*Students with a year after MNY (Advanced university students) Advanced university student status is obtained after completing the curriculum and testing the last semester

9.1.2 STUDENT ADMISSION

State the minimum admission requirements.

The Faculty enrols students within the number of admission places in the first year of study determined by the UNIZG Senate. Enrolment into the study shall be performed on the basis of a public competition announced by the University Senate in accordance with the Statute. The public competition is announced at least six months before the start of the academic year and the content is prescribed by the Statute. Each constituent of the University must, according to the Statute, decide on the conditions and criteria contained in the competition. The FVMUZ is one of the oldest faculties in Croatia with a long tradition of enrolment carried out by classification procedure. Up to 2009, enrolment was carried out by the Faculty itself, based on the classification procedure. However, administration of the FVMUZ supports the implementation of the school leaving exam. Since the beginning of the academic year 2009/10 students are enrolled based on the ranking of the **N**ational **C**entre for **E**xternal **E**valuation of **E**ducation (NCVVO) within the number approved by The Ministry (MZOS). By introducing such a procedure the interest of the applicants has highly improved so that we have not had any problems filling the approved quota in the observed period. The rules of application and taking the school leaving exam are prescribed on a state level by the *Regulations on Taking the Final State High School Exam* ("Official Gazette" 87/10) and rules prescribed by the NCVVO.

The NCVVO is a public institution whose main activity is external evaluation of the educational system, especially the preparation, organization and implementation of the Final State High School Exam (FSHS-EX). Based on the *Treaty on the implementation of the exam for the enrolment into the programs of universities and their constituents* as well as institutions of higher education in Croatia, the Centre implements exams whose results are used by the institutions of higher education to rank the candidates for the enrolment into study programs carried out by the institutions of higher education of the Republic of Croatia.

The record on the FSHS-EX is being kept at the Central register of state exams (SRDM). The record on applications for study programs is being kept at the **N**ational **I**nformational **S**ystem for **A**pplications for institutions of higher education (hereinafter: NISpVU). Both of these systems are unified on the website <u>www.postani-student.hr</u>, which is used for application to the FSHS-EX as well as publishing the results and ranking of candidates.

NISpVU is the central informational-administrative service which candidates may use to apply for the FSHS-EX and study programs. Priority lists are made for all study programs based on the results of the FSHS-EX, score obtained on the basis of secondary-school success, score based on specific success such as competitions or sports status as well as additional tests of special knowledge, skills, abilities and other achievements. By signing in to the website <u>www.postani-student.hr</u> each candidate can see his/her place on the priority list based on which the institutions of higher education will later implement enrolment.

Candidates nearing the end of their four-year secondary education during current school year may sign in to the website <u>www.postani-student.hr</u> with their AAI@EduHr electronic identity given by the school administrator.

The criteria for the enrolment into specific study program evaluated by the institutions of higher education are: score based on secondary-school success, results of the state exam, success in different competitions in knowledge and skills, testing of other competencies and achievements.

Total number of points obtained at the FSHS-EX is 1000. Each faculty autonomously decides on the distribution of the points from secondary education, score achieved at state exam's obligatory subjects (Croatian, Mathematics, and English) as well as optional subjects. Every fourth grade pupil may, via National informational system (NISpVU), apply for 10 faculties. In academic year 2011/12, during the first enrolment period, 1100 students applied for the FVMUZ. All the applicants choosing the FVMUZ had to provide a valid medical certificate given by a school medicine doctor. Complete application and documentation was submitted by 125 students in the first enrolment period.

At the initiative of the UNIZG, FC held the meeting on 12th February 2011 and discussed raising the levels of general education subjects (Croatian, maths and foreign language) which are obligatory subjects at the school leaving exam. Since general education subjects could be tested at two levels – higher A level and lower B level, the FC decided that for some of the general subjects the level will be raised in the academic year 2012/13. (*Document: class: 640-01/11-303/10, Ur. br.: 251-61-01/139-11-37)*:

- a) Croatian language tested at A level, instead of level B
- b) Mathematics test remains at level B
- c) Foreign language tested at A level, instead of level B

For application procedures, selection of the specific study program, ranking and publication of priority lists, all candidates are referred to official web pages of institutions carrying out the procedures where they can find forehand, accurate and complete information.

- Become a student <u>www.postani-student.hr</u>
- National Centre for External Evaluation of Education <u>www.ncvvo.hr</u>
- Agency for Science and Higher Education <u>http://www.azvo.hr</u>
- Ministry (MZOS) <u>http://public.mzos.hr/Default.aspx?sec=2246</u>
- FVMUZ <u>www.vef.unizg.hr/upisi</u>

Indicate whether there is a limit to the number of students admitted each year.

In Croatia, and by that the UNIZG as well, there is no system of deciding the quota based on the social needs or real needs of the labour market. However, the Faculty itself does not finds this as a problem, since the labour market recognizes our graduated students and according to all available facts, still, despite the deep economic crisis, there are needs for veterinary personnel (doctors of veterinary medicine). During the process of establishing the enrolment quota FVMUZ Management bear in mind national needs and capacitance of the Faculty (number of teachers and assistants, capacity of laboratories and teaching rooms, etc).

The procedure for defining the enrolment quota

When defining the enrolment quota the Faculty holds a discussion each year at the Faculty council based on the criteria brought by the University Senate. The UNIZG has decided on the minimum indicative enrolment criteria. In the process of defining the quota, the Faculty takes care of the previous experiences (most of all teaching content), teacher workload and spatial capacities, expected interest for the study as well as the number of currently unemployed graduated students. This procedure of transparent conciliation of student enrolment quota contributes to the fulfilment of quality teaching criteria, but also takes care of the needs on the labour market and social development. Minimum criteria are already established by the *Law on quality assurance in science and higher education, Regulations on evaluation of undergraduate, graduate, integrated study programmes University of Zagreb and Regulations on the content of accreditation and the conditions of issuing accreditation for carrying out higher education activity, application of the curriculum and reaccreditation of high education institution of the Ministry (MZOS).*

On the proposal of the Committee for education, the FC defined the enrolment quota accepted by the Senate. For the academic year 2011/12 it amounted to 130, that is 125 Croatian citizens and 5 provided places for foreign citizens. The fore mentioned number is in accordance with teaching, organisational and spatial capacities of the Faculty as well as the needs of the labour market.

Describe how the number of government-funded student places is determined.

As was already mentioned in the introductory part of this SER, one important novelty in student enrolment in the first year of study in the academic year 2007/08, was the application of the new system of tuition participation (see Chapter *Introduction, Subchapter Main changes to the study program*, of this SER). In the academic year 2011/12 based on paragraph 2, article 31 of the *Law on the Government of the Republic of Croatia* ("Official Gazette" 150/11), in connection to the paragraph, article 86 of the *Scientific activity and higher education act* ("Official Gazette" 123/03, 105/04, 174/04, 2/07 – Decision of the Constitutional Court of the Republic of Croatia, 46/07, 45/09 and 63/11), the Croatian Government made a decision at the meeting held on 2nd August, 2012 on the complete subsidy of tuition cost participation for full-time students attending public institutions of higher education in Croatia for academic years 2012/13, 2013/14, 2014/15.

This Decision determines the resources needed for complete subsidy of tuition cost participation for fulltime students of undergraduate university studies, integrated undergraduate and graduate university studies, graduate university studies, professional studies as well as specialist graduate studies:

- who enrol their first year of study at a public higher education institution in the academic year 2013/14 or 2014/15;
- who at the moment of enrolment in academic school year 2012/13, 2013/14 or 2014/15, gained at least 55 ECTS points in the previous academic year studying on a public higher education institution. For students with more than 60% disability status the minimal number of ECTS points is 30.
- who in the academic year 2012/13 enrol their second year of graduate or specialist graduate study for the first time, or fourth, fifth or sixth year of integrated undergraduate and graduate university study at a higher education institution.

Next, based on the Article 31 of the Statute of the Faculty of Veterinary Medicine of the UNIZG, the Faculty decided at their regular FC meeting held on 26th September 2012 (*Document: Class: 640-01/12-305/17*) to accept the proposal on study cost participation reimbursement and other reimbursements on the FVMUZ for the academic year 2012/13 as follows:

- Based on the Decision of Croatian Government and The Senate of the UNIZG all students obtaining 55 ECTS in the academic year 2011/12 shall be released from paying participation costs in the academic year 2012/13. The students obtaining less than 30 ECTS shall pay the maximum amount of participation – 9.600,00 kuna.
- 2. Students obtaining 30 to 54 ECTS points shall pay the tuition cost participation in the amount based on the number of ECTS points and their average score. The value of 1 ECTS point is 160,00 kuna.

Outline any selection process (or criteria) used in addition to the minimum admission requirements.

No additional selection process was used.

Describe whether students applying for and/or starting veterinary training have an equal or very variable knowledge base in scientific disciplines from their previous studies.

Grammar and vocational schools are two basic types of educational programs in Croatia which the applicants enrol based on their choice. Both of these types can be subdivided into different profiles depending on the curriculum. The outcome of student's choice of different profile is an uneven exposure to teaching and study of certain basic subjects during secondary-education (biology, physics, chemistry). That could result in uneven chance later on in achieving results in basic subject exams within the Faculty curriculum. Therefore it can be concluded that the student flow from first to second year of study in relation to the quota is low. It is reasonable to conjure that such variability in knowledge is one of the reasons for dropping off. All of the above mentioned especially refers to fields of physics and chemistry. Therefore, additional effort is invested in helping the students in need through additional classes and open hours by the teachers, assistants and senior students.

The only exception are foreign students visiting the Faculty within International exchange programmes. Incoming students within ERASMUS and CEEPUS programmes come from: *Wroclaw University of Environmental and Life Sciences, Faculty of Veterinary Medicine, Poland; University of Veterinary and Pharmaceutical Sciences Brno, Czech Republic and Univerze v Ljubljani, Veterinarska fakulteta and Veterinarski fakultet Sveučilišta sveti Ćiril i Metod u Skopju, Republika Makedonija.* Under other circumstances, based on the Decision of the Senate of the UNIZG, veterans and invalids of the Homeland war (HRVI) as well as children of killed, incarcerated or missing veterans and 100% invalids (HRVI) of the first group will be enrolled according to the criteria published in the competition of the UNIZG for the first year of study under the condition that they passed the threshold, no matter of their ranking in the priority list. If such an applicant lands out of the approved number of places for admission in the first year available, he/she shall be enrolled outside the quota.

Outline any changes foreseen in the number of students admitted annually. If applicable, describe how the Faculty plans to adjust to these changes.

We believe that the present number of enrolled students (130 – 150) represents the upper limit that the FVMUZ can afford, considering the demands of the labour market.

Table 9.2 asks for the numbers of undergraduate students admitted to the Faculty over the last five years. Apart from the 'standard' intake, the Faculty may also be taking in students as transfers from other courses, privately funded students, etc. Please indicate any supplementary intake of this kind in the last column of the table.

Number admitted Year Number applying for admission ,Standard" intake Other entry mode (describe) 2011./2012.* 526 130 0+3** 4 (children of killed/missing in war) + 2010./2011. 402 124 1*** foreign student 2009./2010. 186 130 0 3 2008./2009. 207 136 2007./2008. 237 131 1 average 130.2 2.75 311.6

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

*year prior to evaluation; **Incoming ERASMUS, students (3 months periods); ***Non EU foreign students.

9.1.3 STUDENT FLOW

Table 9.3 establishes to what extent students make progress in their studies. To this end, we look at the students who were admitted initially and which year they have reached after the MNY has elapsed.

Table 9.3: Student flow and total number of undergraduate veterinary students

	Number of students present after admitted year 1		Number of additionally admitted students
	1st year ¹	172	+ 5*
	2nd year	120	
	3rd year	109	
	4th year	88	
	5th year	66	
MNY	6th year	58	
	>6th year	430	
Number undergraduate veterinary students		1043	5

*Incoming ERASMUS and CEEPUS students (3 months periods); 1) mark year matching MNY

Table 9.4a: Number of students graduating annually over the past five years "old curriculum"

Year	Number graduating
2011./12*	49**+26***
2010./11	104**+7***
2009./10	93**
2008./09	95**
2007./08	117**
average	98.2

* year prior visitation; **number graduating ("old curriculum"); ***number graduating ("new curriculum")

Table 9.5a: Average duration of studies (distribution of students in years)* "old curriculum"

Duration of attendance	Number	Average
years 0 ¹⁾	0	0
years 1	0	0
years 2	3	0,06
years3	15	0.31
years 4	14	0.29
years 5	6	0.12
years>5	11	0.22

(*) This number corresponds to all student of the "old curriculum" graduated at the Faculty since the academic year 2006./2007. ¹⁾ year matching MNY = 5 years assigned to veterinary curriculum; * a year prior to the visitation

Based on results reported in Table 9.5a, the average duration of veterinary studies at the Faculty (from admission to graduation) is **9.72 years.**

Table 9.5b: Average duration of studies (distribution of students in years)* "new curriculum"

Duration of attendance	Number
years 0 ¹⁾	1
years 1	23
years2	2
years 3	0
years4	0
years 5	0
years> 5	0
Average duration of studies:	6.038

(*) This number corresponds to all student of the "new curriculum" graduated at the Faculty since the academic year 2005./2006. 1) year matching MNY = 6 years assigned to veterinary curriculum; * a year prior to the visitation

Based on results reported in Table 9.5b, the average duration of veterinary studies at the Faculty (from admission to graduation) is **6.038 years.**
Describe the requirements (in terms of completing subjects and examinations) for progression to a subsequent year of the course.

Progression to a subsequent year of the course

The student gains the right of progression to a subsequent year of the course by filling in all the foreseen obligations and passing the exams which, according to the system established by the study programme, enable progression to a subsequent year, based on the decision of the FC:

TERMS OF PROGRESSION TO A SUBSEQUENT YEAR (2012/13) AT THE FVMUZ

Students of the second semester in the academic year 2011/12 of the integrated undergraduate and graduate study of veterinary medicine, having taken the second semester classes (2011/12) are granted progression to the third semester with at least 45 ECTS points. The rest of the first year's 60 ECTS have to be accumulated until the progression to the winter semester of the 2013/2014 academic year at the latest.

- Students shall test the third semester 2012/13 to progress to the fourth semester 2013/14.
- **Students of the fourth semester** of the integrated undergraduate and graduate study of veterinary medicine, having taken the fourth semester classes 2011/12, are granted progression to the fifth semester with all first year exams passed and at least 45 ECTS second year's points. The rest of the second year's 60 ECTS points have to be accumulated until the progression to the winter semester of the 2013/14 academic year at the latest.
- Students shall test the fifth semester 2012/13 to progress to the sixth semester 2013/14.
- Students of the sixth semester of the integrated undergraduate and graduate study of veterinary medicine, having taken the sixth semester classes 2011/12, are granted progression to the seventh semester with all second year exams passed and at least 45 ECTS third year's points. The rest of the third year's 60 ECTS points have to be accumulated until the progression to the winter semester of the 2013/14 academic year at the latest.
- Students shall test the seventh semester 2012/13 to progress to the eighth semester 2013/14.
- **Students of the eighth semester** of the integrated undergraduate and graduate study of veterinary medicine, having taken the eighth semester classes 2011/12, are granted progression to the ninth semester with all third year exams passed and at least 44 ECTS fourth year's points. The rest of the fourth year's 60 ECTS points have to be accumulated until the progression to the winter semester of 2013/14 academic year at the latest.
- Students shall test the ninth semester 2012/13 to progress to the tenth semester 2013/14.
- **Students of the tenth semester** of the integrated undergraduate and graduate study of veterinary medicine, having taken the tenth semester classes 2011/12, are granted progression to the eleventh semester with all fourth year exams passed as well as Surgery, orthopaedics and ophthalmology III, Domestic animals obstetrics III, Radiation hygiene, the rest of the remaining fifth year subjects and at least 7 ECTS points. The rest of the fifth year's 60 ECTS points have to be accumulated before the beginning of the work on their thesis.
- Students shall test the eleventh semester 2012/13 to progress to the twelfth semester 2013/14.
- **Students of the eighth semester** of the graduate programme of veterinary medicine, having taken the eighth semester classes 2011/12, are granted progression to the ninth semester with all the third year exams passed and only one among Methods of physical therapy and diagnostics, General and clinical radiology or Internal diseases, still not passed.

Students are obliged to pass the transferred exam until the progression to the winter semester of 2012/13 academic year at the latest.

Describe the academic circumstances under which the Faculty would oblige students to leave the course.

Students repeating the year may be granted enrolment of certain subjects from the senior (subsequent) year in accordance with the study program up to the value of total 60 ECTS. The total amount includes the credits from the previous year subjects which are still not passed (that is prerequisites not fulfilled), as long as their obligations in one semester amount to 25 to 35 ECTS points, along with prerequisites for enrolment in certain subsequent year subjects (see Chapter 5).

End of the student status

- Completion of the course;
- Leaving the course;
- Not passing the exam 4 times after taking the subject;
- Leaving the course voluntarily;
- Not accumulating at least 35 ECTS points two years in a row;
- Not progressing to the subsequent academic year (semester);
- · Being excluded by disciplinary decision of the authority;
- Other reasons stated in the Statute or other general document of the institution.

9.2 COMMENTS

Comment on standard of the students starting the course.

Considering a great interest of students in studying at the FVMUZ in the last couple of years as well as a limited number of enrolment places, strict classification procedure achieved by increasing the level of conditions was indispensable. The Faculty can recommend the Senate of the UNIZG the limitation of the quota, however, the number of enrolment places is strictly connected to the financing system. We believe, taking in consideration the present situation (in view of the staff, premises and labour market demands), that the upper limit of the quota has been reached. Student classification procedure is under the jurisdiction of the National Centre for External Evaluation.

Comment on the ability of the Faculty to satisfactorily decide the number of students it can accept.

Up to now, the Faculty has been successful in keeping the quota. The number of students is decided by accreditation of the Ministry (MZOS) when accepting the study programme. In case of the need for increase or decrease of the quota, discussions are held at meetings of the Faculty council on minimal indicative criteria. Suggestions of the UNIZG and the Ministry (MZOS) are always taken into consideration.

Comment on the factors that determine the number of students admitted/accept.

The number of enrolled students (130 – 150 per year) is the maximum number still ensuring the appropriate educational standards. Presence of great student dispersal in lower years has already been highlighted. It happens because of the transfer to other related faculties or harder student adjustment resulted by different level of knowledge upon enrolment. According to the present regulation, the Faculty is preparing to introduce additional classification procedures, along with the results of the state exam, based on the previously established testing procedure.

Comment on the adequacy of the facilities and teaching programme to train the existing number of students.

Spatial capacity is more than satisfying. Facilities available to the Faculty are proportionate to the need of incoming students per year (130 – 150). Large hall (209 seats) hosts most of the lectures and there is also a number of smaller lecture rooms. Teaching laboratories are suitable for groups of up to 30 students and IT classrooms have 16 seats each. There is also a refurbished reading room, coat room, IT facilities, library and museums at students' disposal. For detailed information on the FVMUZ facilities see Chapters 6.

Comment on the progress made by students in their studies, and the Faculty's ability to ensure that satisfactory progress is maintained.

As already mentioned there is a certain inhomogeneity considering secondary education. This adds a visible inhomogeneity of students' knowledge base. To sum up, students are a highly heterogeneous group which makes teaching quite demanding and a good methodical approach and higher engagement of teachers in lower years of study is necessary. The level of knowledge base is quite stabile although somewhat insufficient, at least regarding physics and chemistry. However, by application of different methods of support, student flow has been highly increased in relation to the state prior to the Bologna reform.

Comment on the percentage of students that will eventually graduate.

The percentage of students graduating (51.62%) is not satisfying. Well known is the fact that studying is very demanding, that it asks for a greater student involvement in mastering obligations foreseen by the curriculum. Therefore, students of veterinary medicine in general need more time compared to the duration of student rights. During the observed period it took 9.72 years in average for students to finish the old study program; the span being from 8 to 12 years. Students taking the new curriculum need much less to graduate – 6.038 years. In the last few years a trend has been noted – higher number of students leaves the FVMUZ after finishing the first year of study (around 24.8% of students enrolled in 2011). Classes have been organised as best as they could, given the conditions, so there is no reason to regard the organization of teaching as an element influencing the student flow.

9.3 SUGGESTIONS

lf you are not satisfied with the situation, please state in order of importance any suggestions that you may have concerning this Chapter if you feel unhappy about:

The number of students admitted;

The drop-out percentage and reasons, if known;

The average duration of studies;

Other aspects.

We could say that inhomogeneity of enrolled students is one of the main issue which has to be solve in the present condition. Introduction of the classification procedure implemented by the Faculty along with the results of the state exam could improve the current state. Some of the problems, caused externally, substantially reflect on the work of the Faculty. Increase in realistic teacher workload caused by different reform processes in higher education has not been followed by adequate resources. Continuous tracking of student work still takes a lot more time than seen through the prescribed teaching norm (preliminary exams preparation and correction, seminar work, thesis mentoring, finishing teaching materials, engagement in web page and LMS maintenance, ISVU system administrative activities etc.). Furthermore, due to increase of responsibilities, less time is left for work with outstanding students in mind of projects that would enable expansion of the subject matter. In order for the society to recognize that the Faculty offers quality and attractive education for future workplaces, it is important to work on continuous, designed promotion that should be appropriately supported by the state, according to the EU models. The promotional campaign of the study programmes usually starts with the UNIZG Fair and Open day of the Faculty. For the campaign purposes a strategy is created, as well as promotional video, brochures, flyers, games with prizes for the quiz winner.

The increase of study quality at all levels will simultaneously influence "eternal students" group and group of those who drop out. The students from first group will find it harder to stay students for long time and the other group will more easily get support for completing the study.

CHAPTER 10. ACADEMIC AND SUPPORT STAFF











90 years of the Faculty of Veterinary Medicine University of Zagreb

Chapter 10. ACADEMIC AND SUPPORT STAFF

10.1 FACTUAL INFORMATION

Table 10.1: Personnel in the establishment provided for veterinary training

	Budgeted posts (FTE)		Non-bu posts	dgeted (FTE)	To (FT	tal FE)
1. Academic staff	VS	NVS	VS	NVS	VS	NVS
Teaching staff (total FTE)	125	5				
Research staff (total FTE)	31	3		-		
Others (please specify) (FTE)		2				
Total FTE	156	10				
Total FTE (VS + NVS)	1	66				
FTE providing teaching last year						
2. Support staff						
a) responsible for the care and treatment of animals		24				
b) responsible for the preparation of practical and clinical teaching.		65				
c) responsible for administration, general services, maintenance, etc.		32				
e) others (please specify)		4				
Total support staff	1	25				
Total staff	2	291				

Academic staff – from assistant professors to full professors, assistant, senior assistant, lecturer, senior lecturer

Others: lecturer, senior lecturer

Research title – junior researchers

Support staff:

a) orderlies;

b) technical staff, senior technicians, taxidermist, head of laboratory, laboratory technicians, senior laboratory technicians, expert associates, expert advisors;

c) administrators, heads of organizational units, dr. med. vet., additional technical assistant (maids), drivers;

d) senior research fellow, senior research fellow, assistant research fellow;

Division name	Academic teaching staff							ິດ Su	Support staff (see table 10.1)																						
	F pr	ull of.	Asso pr	ociate rof.	Assistant prof.		Assistant _ prof.		Assistant prof.		ite Assistant prof.		Assistant prof.		Assistant prof.		Assistant prof.		Assistant		Assistant		Assistant		t Assista		Other ¹		Technical	Animal carers	Admin.
	VS ²	NVS ³	VS	NVS	VS	NVS	V.5	INVS	VS	NVS	(b+u+e)	(a)	(C)																		
Basic and prec- linical sciences division	12	1	4	1	7	1	13	2			16	3	9																		
Clinics division	17	0	14	0	10	0	17				23	18	13																		
Animal production division	8	1	2	0	5	0	8				8	0	3																		
Veterinary public health division	13	0	9	0	4	0	15				21	3	8																		
Teaching chairs										2																					

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

Assistant (senior assistant, junior researchers), Other1 - (lecturer, senior lecturer); 1Please specify; 2veterinary surgeon (VS); 3) non-veterinary surgeon (NVS)

Ratios: From the above data please delineate the following ratios

Table 10.3: Student/staff Ratios

		Denominator
R 1:	Total no. academic FTEIn veterinary training³= 166 = 1 no. undergraduate6136133.69veterinary students2	3.69
R 2:	no. of total FTE at Faculty≟ ₂₉₁ = <u>1</u> no. undergraduate 1043 3.58 students at Faculty	3.58
R 3:	no. total VS FTE in veterinary training ³ = 125 = 1 no. undergraduate 613 4.90 veterinary students ²	4.90
R 4:	no. total VS FTE in veterinary training ³ = <u>166</u> = <u>1</u> no. students graduating 75 0.45 annually	0.45
R 5	no. total FTE academic staff in veterinary training ³ = <u>166</u> = <u>1</u> no. total FTE support staff 125 0.75 in veterinary training	0.75

1) applies only to those Faculties which offer additional courses to the veterinary curriculum, 2) Table 9.3. 3) Table 10.1

Outline how the allocation of staff to the Faculty is determined.

The allocation of staff is regulated by the Regulations on Job Systematization, which have been approved by the UNIZG. The FVMUZ currently has 109 employees holding scientific-educational titles, ranging from assistant professors to full professors, 21 employees holding the associate titles of assistants and senior assistants, four employees holding scientific titles and two employees who work as senior lecturers. 34 junior researchers have been employed through a system of projects funded by the Ministry (MZOS). Also, there are 125 employees at the Faculty who are not involved in the teaching process. The salaries of these employees are entirely funded from the budget of the Republic of Croatia. Each head of a department/clinic is responsible for the personnel policy of their department/ clinic pursuant to Article 16 of the *Statute of the Faculty of Veterinary Medicine*. If the need arises for a new post, the head sends a request to the Dean and the Committee for Appointment to scientific-educational, scientific, educational and associate titles. The Committee considers incoming requests at its meetings and, on the basis of real needs and workload, submits a proposal to the FC that makes a final decision. Following the decision of the FC, the request and required documents are forwarded to the UNIZG, which then seeks agreement on funding the total amount of a personal salary for the post from the Ministry (MZOS).

Outline how the allocation of staff to the departments (or other units) within the Faculty is determined.

Under the Statute, the Faculty is divided into four divisions, teaching chairs, research-teaching polygon and the Faculty administration.

The Divisions were established so that teaching, scientific and highly specialized activities could be conducted and linked. In addition to this, the establishment of the divisions has also facilitated carrying out professional administrative tasks related to the conduct of scientific-research activities, record keeping, preparation and coordination of teaching and other activities necessary for the normal operation of the Faculty. Divisions are:

- The Basic and Pre-Clinical Sciences Division consisting of seven departments. Within the Division, there are 26 employees holding scientific-educational titles, from assistant professors to full professors, 6 employees holding associate titles of assistants and senior assistants, 9 junior researchers, 2 employees holding scientific titles and 28 support staff employees.
- 2. The Clinics Division of the FVMUZ consisting of seven departments/ clinics. Within the Division, there are 41 employees holding scientific-educational titles, from assistant professors to full professors, 8 employees holding associate titles of assistants and senior assistants, 9 junior researchers, and 54 support staff employees.
- 3. The Veterinary Public Health and Food Safety Division consisting of six departments. Within the Division, there are 26 employees holding scientific-educational titles, from assistant professors to full professors, 5 employees holding associate titles of assistants and senior assistants, 10 junior researchers, one employee holding a scientific title, and 32 support staff employees.
- 4. The Animal Production and Biotechnology Division consists of five departments. Within the Division, there are 16 employees holding scientific-educational titles, from assistant professors to full professors, 2 employees holding associate titles of assistants and senior assistants, 6 junior researchers, one employee holding a scientific title, and 11 support staff employees.
- 5. Teaching chairs consist of two Chairs. Within the Chairs, two senior lecturers are employed.

Indicate whether there are difficulties in recruiting or retaining staff.

It may be said that difficulties in hiring staff occur at the moment when a junior researcher - senior assistant, who has spent ten years within the system of the Ministry (MZOS), has no possibility of obtaining consent to be employed as an assistant professor as the Ministry (MZOS) has not approved "development" (reform) job positions in the last three years. The reason for this is the consolidation of the state budget. If the Faculty, using its own funds, hires a person (on position of assistant professor), after he/ she was working for ten years as young researcher, all obligations according to legislation are on the FVMUZ as employer.

Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade.

In the past decade, vacancies were filled in that after the retirement of teachers, a senior assistant from a Department/Clinic where the said teacher was employed would fill his position. The second option was to request approval for filling a vacant associate position, under the standard workload of the Department/ Clinic, set by the *Regulations on Job Systematization*, from the UNIZG. Until 2009, the University used advertise vacant development positions in the University once a year. In that case, the Committee and the FC would establish which departments/clinics had a need for hiring, and would submit a request for approval to the UNIZG. In this way, the issue regarding the need for employees holding titles ranging from associate to scientific-educational, in some departments/clinics, would have been resolved.

The head of a department/clinic submits a request for the employment of support staff to the Faculty Dean. Having considered the submitted request, the Dean seeks approval from the UNIZG.

Indicate whether it is easy to employ additional staff from service income (e.g. from revenues of clinical or diagnostic work)

The employment of additional staff from service income is possible if, due to the increased workload of departments/clinics, there is a need for additional staff that has not been included in the state budget. In that case, a department/clinic that earns money independently on the market can use its own funds

to hire the additional staff member(s). The employment contract for these persons should not be longer than three years.

Describe the regulations governing outside work, including consultation and private practice by staff working at the establishment.

Opportunities to work outside the Faculty are primarily governed by the *Labour Act*. The legal ban on competition is described in Article 93, Paragraph 1 of the said act. A worker would violate the legal ban on competition if s/he worked:

- Without the approval of the employer,
- Concluded business transactions in the field of activity of his/her employer,
- For his own or another's account,
- During the period the employment contract was active.

Article 94, Paragraph 1 of the Labour Act provides for the possibility of an agreement between the employer and the worker specifying that, for a certain time after the termination of the employment contract, the worker must not be employed by another person who is competing on the market with the employer, and that the worker must not conclude business transactions that constitute competition with the employer, either for his own account or for the account of others.

This is a contractual prohibition of competition.

We also believe that, at this point, it is important to mention the provisions of the Labour Act which regulate inventions and technical innovations by workers.

The worker must notify the employer of an invention made at the workplace or in relation to the work. That invention belongs to the employer, who is the holder of patent rights.

If a worker's invention is not made at the workplace but it is an invention related to the employer's activity, the worker shall make the employer an offer to transfer rights in relation with the invention. The provisions of the Law of civil obligations governing the right of pre-emption shall be applied.

A technical innovation by workers is an innovation proposed by the worker. If the employer agrees to apply a technical innovation proposed by the worker, the employer shall pay an award.

The Scientific Activity and Higher Education act stipulates that a person elected to scientific-educational, artistic-educational, educational and professional positions shall sign an employment contract of indefinite duration.

Contracts between teachers and associates and other legal entities outside their home institution may be prohibited, restricted or conditioned when such contracts would adversely affect the activity of a higher education institution, or in the case of a contract with a legal entity that is competing with the employer of a teacher or an associate.

Describe the possibilities and financial provisions for the academic staff to: a) attend scientific meetings; b) go on sabbatical leave.

Work outside the Faculty is regulated by Article 54 of the Statute, the basic legal act of the FVMUZ.

Under the *Labour Act*, the FVMUZ has adopted Employment Regulations. The issue of non-competition between workers and the employer and conflict of interest is regulated by Articles 88-93 of the

Employment Regulations.

- Academic staff attends scientific conferences according to their teaching duties. The Faculty has no specific budget to support symposium attendance. It is possible to finance scientific symposiums from scientific projects and revenues that a Department/Clinic earns on the market. The Faculty participates in covering a part of the cost of training that lasts more than 30 days.
- Under the Sabbatical Leave Regulations of the FVMUZ, employees elected to scientific or scientificeducational titles and positions may use academic leave (*sabbatical*) for scientific, professional and educational training. Teachers, holding scientific or scientific-educational titles, may use this right once every seven years after six years of continuous service in the same institution. A teacher may use a sabbatical year only when the department/ clinic ensure continuity of classes and meeting the other obligations of the absent teacher, and continuity of a scientific or professional project in which the teacher in question is participating. During the use of a sabbatical, a teacher shall exercise all rights in accordance with the statutory provisions, as well as the rights stipulated by the Collective Agreement or the Faculty's general acts. Funds are allocated from the state budget for employees on sabbatical leave.

10.2 COMMENTS

Comment on the numbers of personnel in the various categories.

Work standardization relating to teaching is stipulated pursuant to the Collective Agreement for Science and Higher Education. The Faculty follows the instructions laid down by the Collective Agreement, which stipulates that teachers work with students in small groups, especially during practicum, up to 10 students during laboratory and field practical work, and 5 to 6 students for specific clinical practical work (obstetrics, surgery and internal medicine) per teacher. The amount of hours of practical work related to programming exercises is larger, in order to enable students to work more independently under the supervision of teachers. A greater number of teachers and associates, and technical support staff is needed to conduct this form of teaching. 24-hour duty at clinics of the Faculty with the participation of students in night duty should be emphasized. For these reasons, it is evident that, due to small groups assigned to practical work relating to clinical subjects, there is a need to fill assistant positions. Moreover, we would like to point out that the younger scientific staff (including junior researchers) may use the services of the Office for assistants & technicians, whose head is the Vice-Dean for science and international cooperation. There, they can get all the necessary information about their standing and position at the UNIZG. Regarding the portion of young scientists in the activities of the Faculty, we have tried to include them in the FC (five representatives of each department), the Council's committees and all the activities of departments/clinics. The technical staff has opportunities to participate in the Faculty's activities through the works council, which is established by the Science and Higher Education Trade Union. They can also participate in the election of the head. Each newly employed junior researcher or assistant is introduced to the Faculty's activities by his/her mentor or head. Depending on the affinities of young scientists, education within other departments/clinics of the Faculty is provided.

Comment on the ease or difficulty of recruiting and retaining personnel.

The Faculty administration is aware of the potential economic and financial difficulties regarding the approval of new positions and filling the existing ones. It is ready to react for a certain period of time in order to reduce their impact on the Faculty's activities.

Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sector.

The salaries of the employees of the Faculty are proscribed by the Law on salaries in public services. In Article 7 of the *Regulation on job titles* and complexity coefficients in public services, job titles and complexity coefficients are listed for employees of institutions of higher education and public institutes. Pursuant to the Regulation, employees and academic staff in all the institutions of higher education share the same complexity coefficient (salary). Gross salary of a young scientist/assistant is equivalent to the average salary in the Republic of Croatia and it amounts to 1,150 euro, which means that the net salary is 750 euro. The salary of a full professor with tenure and 30 years of working experience amounts to three average gross salaries. The salary of the Dean is also proscribed by the Regulation, and it is only 100 euro higher than the salary of a full professor.

Salaries in private sector are not subject to the Law on salaries, and are determined freely according to market demands, internal regulations of companies, complexity of the jobs and education level of the employees. This means that in some private sectors, the salaries are several times higher than the salaries of academic staff. Speaking of managerial contracts, monthly salary of a manager equals the annual salary of the Dean of the Faculty.

Comment on the percentage of veterinarians in the academic staff.

The percentage of veterinarians in the academic staff of the Faculty is 94% of the total number of the academic staff. Bearing in mind the specific characteristics of the study, the ratio is justified. Non-veterinarians participate in basic subjects (chemistry, biochemistry, physics, biology, English, etc.).

10.3 SUGGESTIONS

There are no suggestions.

CHAPTER 11. CONTINUING EDUCATION













Chapter 11. CONTINUING EDUCATION

11.1 FACTUAL INFORMATION

Please describe the role of the Faculty in providing continuing education.

Continuing education of veterinarians in the "Lifelong Learning Programme" (LLP) implicates all activities of the Faculty regarding learning and training process which lasts for a lifetime, aiming to improve knowledge, skills and capabilities of veterinary professionals. Continuing education at FVMUZ can be divided into CPE (Continuing Professional Education) and CEFS (Continuing Education of Faculty Staff).

In regard to CEFS, the management of the Faculty is aware of the fact that the concept of permanent education of teaching staff members represents the key issue of quality assurance. Within the framework of permanent education of teaching staff in the period of last three academic years, numerous seminars and interactive lectures for staff members of FVMUZ in the fields of pedagogy, interactive learning and English language skills were organized. Here are few significant themes of seminars:

- Presentation and Oratory Skills,
- English for Conferences,
- Modern Styles and Techniques of Teaching,
- Pedagogic Methods and Techniques.

A series of lectures for graduates, associates and teaching staff was organized on the subject of Management in Clinical Veterinary Practice (Antje Blättner, Germany). A course for faculty teaching staff "Active Learning and Critical Thinking in Faculty Teaching" was organized in a form of four two-day workshops. The Faculty teaching staff also attended ERASMUS seminars ("Lifelong Learning Programme in EU") organized by the Ministry (MZOS), workshops ("French experiences in LPP & CPE") organized by the French Embassy in Zagreb and Agency for Mobility and European Union Programmes, as well as six workshops within the project "Learning Outcomes on Graduate and Postgraduate Studies at the University of Zagreb".

The LMS (Learning Management System) courses were organized for all the teaching staff, where they acquired knowledge necessary for the use of VEF-LMS & CARNet (see FVMUZ web page: <u>http://www.vef.unizg.hr/e-ucenje/?adnce=j&m=fe00fffffc2d8</u>).

Specialized methodological courses in biology and medicine, organized by Institute "Ruđer Bošković" were prepared for the teachers of basic subjects. Croatian expert group for "Bologna Declaration" held a conference on the implementation of Bologna process in 2011 at the University of Zagreb. The host of the event was the Faculty of Electrical Engineering and Computing and the conference was organized in cooperation with the Agency for Mobility and European Union Programmes. Members of the teaching staff were actively included in the course "Quality Assurance in Higher Education and Education Based on Learning Outcomes".

Throughout CEFS cooperation was established with the University of Georgia (UGA), College of Veterinary Medicine, Athens, Georgia, USA. A permanent staff member of the Surgery Clinic, Marko Stejskal, DVM, MSc, PhD spent four weeks at the UGA for the purpose of gaining a residency status, and he successfully satisfied all of the criteria, earning the place at the start of the programme from August 2012. Prof. Dražen Vnuk, DVM, MSc, PhD entered the alternative 5-year specialization programme of the ECVS. The Faculty financed all the expenses of official rotations, specialization visits to Vienna, Zürich, Munich and Germering and mandatory attendance at the annual meeting of the members of ECVS. The Faculty

plans to enrol young teachers from Internal Diseases Clinic and Obstetrics and Reproduction Clinic to the Residency programme.

As for the CPE, it is well known that everyday changes in the development of veterinary science demand the establishment of a new education system, one that should not end when a veterinarian finishes formal education, but should continue in various forms till the end of vets' professional career. In such an environment, new ways of acquiring knowledge and the transfer of knowledge gain importance, enabling doctors of veterinary medicine to follow the modern trends in their field of specialization. Veterinary practitioners in Croatia meet the challenges in almost every field of veterinary medicine on a daily basis and the FVMUZ recognized a new profile of veterinarians who need detailed specialist knowledge in everyday practice. During the past decade the Faculty, in cooperation with Croatian Veterinary Chamber (*Hrvatska Veterinarska Komora*, acronym: HVK), Croatian Veterinary Institute (*Hrvatski Veterinarski Institut*, acronym: HVI) and the Directorate for Veterinary Medicine of Ministry of Agriculture (*Uprava za Veterinu pri Ministarstvu Poljoprivrede*, acronym: UVMP) has continually organized courses for veterinary practitioners.

Numerous members of teaching and associate staff of the Faculty (78 teachers, 23 associates) were involved in the programme for continuing education of veterinary practitioners, and courses were organized both in Zagreb and in other cities, all over Croatia. During the last four years, there have been 1198 participants in the programmes of continuing education, who acquired certain number of points necessary for the renewal of the license issued by HVK (minimum two, maximum ten points, depending on the duration of the course and type of activities). The HVK requires 20 points earned in CPE for the license renewal every five years.

The list of CPE courses organized by the Faculty is published on web pages and it can be found on the following address:

http://www.vef.unizg.hr/prg/tuvf/index.php??adnce=j&m=fe00ffc03fc2d8

The list (in Croatian) comprises CPE courses grouped by the fields:

- Basic, Natural and Pre-clinical Sciences,
- Animal Production and Biotechnology,
- Veterinary Public Health and Food Safety,
- Clinical courses,
- Other (Miscellaneous).

The lists of CPE courses organized in the last four years are shown in Tables 11.1-11.4.

Table 11.1: List of CPE courses organized in 2009

Title of the Course	Venue
Course in application of DDD	FVMUZ, Zagreb
Course for veterinary workers in DDD	FVMUZ, Zagreb
Veterinary aspects of rabbit breeding	FVMUZ, Zagreb
Veterinary dermatology practice up-to-date	FVMUZ, Zagreb
Mare reproduction control	Županja
Veterinary control of HACCP implementation in food-processing facilities	Zagreb, Solin, Zlatar, Stubica, Pregrada
Physiology and pathophysiology of digestion and metabolism of ruminants	FVMUZ, Zagreb
Selected chapters from clinical diagnostics of horse diseases	Đakovo
Non-antibiotic treatment of mastitis in dairy cows	Bjelovar
Osteosynthesis in small animals	FVMUZ, Zagreb
Pyoderma - diagnostic and therapeutic approach to dogs and cats	Zagreb, Pazin
DDD	Zagreb
Latest findings in parasite control in ruminants	Benkovac, Split
Practical application of food-chain control / Eradication of infertility in cows and CRSH bulls pre- sentation	Križevci, Pazin, Gospić
Mastitis etiology and therapy / Usage of tetracycline antibiotics in respiratory disease therapy	Osijek
BSE - Brain tissue sampling/Utilization of animal by-products not suitable for human consumption	PitomačaHrašće
Epidemiological and clinical characteristics of new A (H_1N_1) influenza pandemics	HAZU, Zagreb
Diarrhoea issues with calves in focus	Varaždin, Bjelovar
Porcine Circo Virus Disease	Osijek
Bovine mastitis diagnostics and treatment and damage caused by udder inflammation in cows	Kumrovec
Current situation – rabies in Croatia and the world	Osijek
Current issues in pig breeding	HVI, Zagreb
Clinical diagnostics of horse diseases	Đakovo
Biological hazards in food	Zagreb
Welfare of laying hens on farms and protection during transport	HVK, Zagreb
Welfare and protection of animals in transport	HVK, Zagreb
Measures of control in dairy sector, including food hygiene and by-products of animal origin	FVMUZ, Zagreb
Total number of participants	318

Table 11.2: List of CPE courses organized in 2010

Title of the Course	Venue
Oestrus induction and synchronization of cow reproduction cycle	FVMZU, Zagreb, Požega
Non-antibiotic treatment of mastitis in dairy cows	FVMZU, Zagreb
Application of DDD	FVMZU, Zagreb
Course for veterinary hygienists and disinfectors	FVMZU, Zagreb
Veterinary control of HACCP implementation in food-processing units	FVMZU, ZagrebJastrebarsko
Good practice in "Kulen" production on family farms	FVMZU, Zagreb
Physiology and pathophysiology of digestion and metabolism in ruminants	FVMZU,Zagreb
Veterinary aspects of rabbit breeding	FVMZU,Zagreb
European College Day - Dermatology	FVMZU, Zagreb
Distribution and analysis of animal tumours in domestic animals	RijekaVaraždin
Physiology and pathophysiology of digestion in ruminants	Osijek
Development of animal tumours database in Republic of Croatia	Vinkovci
Animals welfare on farms	Zagreb
Animals welfare during slaughter	Osijek, Split
Bovine tuberculosis eradication program in Croatia	FVMZU, Zagreb
Analysis of milk intended for public consumption	MPUV, Zagreb
Traceability and self-control system in the food chain	Čakovec, DardaVukovar
Workshop "Simulation of food-and-mouth disease outbreak"	Osijek
Therapy of gastrointestinal and respiratory diseases in intensive pig and cattle farming	OsijekVrbovec
Control of reproductive cycle in ruminants and pigs	Vinkovci
Electronic marking (identification) of sheep and goats	Pazin, VukovarObrovac
Recent findings on dog dirofilariasis and dermodicosys	Pazin
Ensuring traceability and self-control system in the food-processing objects based on the HACCP postulates	Vrbovec
Welfare of laying hens in different rearing systems	HVK, Zagreb
Complex of respiratory diseases in cattle	Kutina
Epilepsy/Upper and lower respiratory system surgery/ Spinal lesions	Zagreb
Small animal cardiology	FVMUZ, Zagreb
Marking, recording and manipulation of protected and strictly protected reptile species	MPUV, Zagreb
Gastroenterology of dogs and cats	Buzin
Total number of participants	279

Table 11.3: List of CPE courses organized in 2011

Title of the Course	Venue
Sanitation in veterinary medicine	FVMUZ, Zagreb
Hygiene in keeping and maintaining of ruminants on family farms (OPG)	FVMUZ, Zagreb
Course in applied DDD	FVMUZ, Zagreb
Course for veterinary hygienists and disinfectors	FVMUZ, Zagreb
Veterinary aspects of rabbit breeding	FVMUZ, Zagreb
Post mortal trichinosis diagnostics	FVMUZ, Zagreb
Chemical immobilisation of wild and domestic animals	FVMUZ, Zagreb
Epidemiologic and clinical characteristics of infections caused by methicillin-resistant Staphylococcus aureus	HVK, Zagreb
Trichinosis in Croatia – current situation & perspectives	Vinkovci
Welfare of laying hens	FVMUZ, Zagreb
Health protection of laying hens-project GPP 2G09HR91	MPUV, Zagreb
Improvement of fertility and oestrus synchronization in cattle	Petrinja, Sisak, Križevci
Conference on food safety	Opatija
Workshop for official food control procedures and implementation of QCS	MPUV, Zagreb
Workshop on control, monitoring and diagnostics of trichinellosis and other food-borne parasitic diseases	Zagreb, Požega, Opatija, Vinkovci, Đakovo, Split
Dermatology	Zagreb
Reproduction and mastitis	Bjelovar
Further implementation of measures aiming to achieve the status of cattle herds officially free from TBC/BV/BEL	Split, Zagreb Osijek, Rijeka
Control of reproduction in dairy cows	Topusko
Anaesthesia of dogs and cats	FVMUZ, Zagreb
Implementation of Directive 1999/ 74 /EC on protection of laying hens and Decision 2006/ 778 /EC	MPUV, Zagreb
African swine fever	HAZU, Zagreb
Surveillance programme of aquatic animals diseases, authorisation on carp farms and official con- trols	Donji Miholjac
Implementation of OIE standard and stray dogs population control	MPUV, Zagreb
Implementation of oral vaccination of foxes in Croatia in 2011	Rijeka, Daruvar, Osijek Varaždin, Zagreb
Endo and ecto parasitoses	Višnjica
Welfare of animals during slaughter	Zagreb, Slavonski Brod
Recent developments in Small animal practices I	Zmajevac
Anesthesiology I	FVMUZ, Zagreb
Recent developments in Small animal practices II	Daruvar
Reproduction control in dairy cows/New findings on effects of GnRH	Osijek
Laboratory diagnostics in small animal practices – control and prophylactics of bacterial and parasite diseases	FVMUZ, Zagreb
Workshop - External professionals as mentors in implementation of practical training for students of Faculty of Veterinary Medicine	FVMUZ, Zagreb
Total number of participants	326

Table 11.4: List of CPE courses organized in 2012

Title of the Course	Venue
Post mortal trichinosis diagnostics	FVMUZ, Zagreb
Veterinary aspects of rabbit breeding	FVMUZ, Zagreb
Behaviour and welfare of farm animals	FVMUZ, Zagreb
Disinfection – biosecurity measure in veterinary medicine	FVMUZ, Zagreb
Basics of aquaculture	FVMUZ, Zagreb
General & specific fish examination tests	FVMUZ, Zagreb
Bees' diseases	FVMUZ, Zagreb
Course in applied DDD	FVMUZ, Zagreb
Course for veterinary hygienists and disinfectors	FVMUZ, Zagreb
Workshop on fox oral vaccination campaign in 2012	Gospić, ZadarSplit, Dubrovnik
Safety of animal food and implementation of self-control system according to HACCP in facilities for animal breeding and production	Virovitica
Vector-borne diseases of dogs	Poreč
Official control of veterinary-medicine products distribution	Požega, Vrbovec, Varaždin, Bjelovar
Emergencies in small practices	HVK, Tuhelj
Intensive care in small practices	HVK, Tuhelj
CSF: clinical status, diagnostics, epidemiology and control	MPUV, Zagreb
Course on animal welfare concerning the killing of animals in disease control situation	MPUV, Zagreb
Puerperal therapy of mastitis and treatment of subclinical endometritis in high-producing cows	Vukovar
Mycoplasmatic pneumonia, proliferate enteropathy and dysentery	Osijek
Veterinary stomatology	Zagreb
Epidemiologic and clinical characteristics of West Nile virus infection in Croatia and neighbouring countries	HAZU, Zagreb
Total number of attendees	275

All the CPE activities, until the adoption of the Strategic Plan of the Faculty Development (SPFD) in 2012, were coordinated on the basis of the draft of the Strategy of Continuing Education adopted on the EFC (Extended Faculty Council) session in 2008.

The Faculty has made a significant step in modernization of the lifelong education concept as a part of its educational mission in the past five years, initiating a new system of permanent education adapted to development of specific knowledge and skills within the specialist field, besides the usual "one to three-day" courses.

The above mentioned task was given to the Committee for continuing education. After multiple discussions and consultations with a working group of veterinary practitioners, the Committee proposed new series of courses for veterinarians in Small Animal Practices (SAP), Large Animal Practice (LAP) and Veterinary Public Health (VPH). This series of courses lasts two years, with individual courses within each series held every three to four months, depending on the number of interested participants.

Within the courses for veterinary practitioners who worked in SAP and LAP, special attention was given to the practical work comprised of diagnostics, therapy and specialist procedures (propedeutics, surgery, obstetrics). Courses in SAP are held at the FVMUZ Clinics and are encompassed of carefully selected clinical cases and, whenever necessary, individual practical work with animals. Courses in LAP are held on the Faculty in lesser part, the majority of courses being held outside FVMUZ, in the field conditions. Courses in VPH are held exclusively out of the Faculty. For the improvement of quality control of continuing education within the same courses, the Committee has established QCS based on anonymous surveys for participants of CPE courses, as well as for responsible persons in the veterinary organisations/ institutions where participants are employed.

LIST OF CPE COURSES IN SPECIALISTIC FIELDS

- Courses for veterinary practitioners in Small animal practice Ophthalmology in small practices I.,II.,III.;
 Gastroenterology in small practices I.,II.,III.,IV.;
 Emergencies in small practice I.,II.,III.;
- Courses for veterinary practitioners in Large animal practice Buiatrics I.,II.,III.,IV.,V.,VI.; Veterinary medicine practice in goat breeding I.,II.,III.; Reduced fertility of dairy cows I.,II.,III.,IV.,V.;
- **Courses for veterinary practitioners in Veterinary Inspection** Veterinary & sanitary inspections - control and supervision I.,II.,III.,IV.,V.,VI.

For the purpose of achieving strategic goals in continuing education, the Faculty encourages exchange of external professionals and cooperation between veterinary organisations, individual mobility of postgraduate students, experts and teaching staff, and improvements in all fields of veterinary profession. The Faculty support all CPE and CEFS activities as a part of LLP which serve to provide proficiency and modern insights for all kinds of skills, knowledge and qualifications for doctors of veterinary medicine throughout their careers. We would like to stress the importance of the activities regarding enrolment of Faculty staff members (veterinarians) in HVK (Croatian Veterinary Chamber). This task has been set for our Faculty for a long time and it has finally been fulfilled to mutual satisfaction. By enrolment of all the veterinary workers of the Faculty in HVK, formal problems regarding the conduction of all veterinary (clinical) activities by our experts were solved in accordance with the legislation.

11.2 COMMENTS

Comment on the quality of the continuing education programmes in which the Faculty is involved.

Considering the fact that the EAEVE GE commended the Faculty for its good relations with veterinary practitioners in its report from 2003 (*see Report on the Visit to the Faculty of Veterinary Medicine, Chapter 11 Continuing education, 11.2 Comments, page 65*) and suggested the enactment of a long term plan for improvement of continuing education, the Faculty has followed the guidelines. Parallel with the reorganization of graduate IUGUSVM programme, reorganization of the continuing education system has been started. Reorganization was initiated upon analysis of the result of a survey on success of the CPE courses, carried out by the Committee for Continuing Education. More than five hundred participants of the CPE courses have submitted their comments on success of the implementation of continuing education programmes. The Committee debated about the shortcomings of the courses held at that moment, and pointed out necessary activities for generating the greater interest of practitioners for successful permanent education. Measures taken to improve the quality of CPE courses were based on the survey's results. Regarding the needs of doctors of veterinary medicine for continuing education resulting in quick and quality information on modern diagnostic methods and treatment for individual species, the Committee

submitted a proposal to organize a series of CPE courses over the period of two or three years, besides the usual "one to three-day" courses. Working committees in charge of interviewing potential participants and teaching staff were organized, as well as committees for the proposal of detailed programmes for series of courses in SAP, LAP VPH & Food Safety. The results of surveys (questionnaires) had shown that both - participants and teaching staff, were satisfied with the offered content and quality of CPE courses. Average grade of the quality of CPE courses was 3.9 on a scale from 1 to 5.

Comment on the degree of participation of veterinarians in the continuing education programs in which the Faculty is involved.

Apart from the CPE courses organized by FVMUZ or actively involved in organization as co-organizer, teaching staff and associates of the Faculty participate as invited lecturers in a whole series of short courses and workshops, mainly organized by the producers of veterinary medicine equipment and pharmaceutical products. There are in average ten to fifteen events on this level annually, mainly organized by the companies such as "Pfizer", "Novartis", "Merial", "Medical Intertrade", "Genera", "Purina", "Veterina", "Oktal Pharma" and "Intervet". During the "Days of Croatian Small Animal Practice" annually organized in town of Varaždin, invited lectures of FVMUZ teaching staff have been organized in cooperation with the HVK, namely the Section for Small Companion Animals.

Besides the aforementioned, the Faculty organizes congresses, symposiums and international conferences. Annual congress of veterinary practitioners "Veterinary Days" are organized each year at different locations, and every fourth year FVMUZ and HVK under the patronage of MZOS and UVMP organize "Croatian Veterinary Congress" with international participation. Every second year the Faculty also organizes International congress "Veterinary Science and Profession" (see Chapter 13, Suggestions). Certain number of workshops, especially the ones dealing with the field of harmonization of veterinary medicine practice in Croatia with European Union is organized by TAIEX (Technical Assistance and Information Exchange instrument managed by the D-G of EC). Regarding all the mentioned forms of continuing education, we can say that between 600 and 700 veterinarians participate in the CPE events each year, which represents roughly half of active veterinarians in the Republic of Croatia. It should be emphasized that in years before the economic crisis, the number of veterinarians included in CPE programmes was showing a gentle growing trend on annual basis, and the majority of practitioners were able to attend several courses in one year. In current economic situation, veterinary practitioners carefully choose courses, attending only the ones that are closely connected to specific parts of their professional work. The Faculty has been actively participating in organization of approximately two-thirds of all CPE courses in Croatia on annual basis, whereas the members of the Faculty staff actively participate in more than 90% of all the CPE courses. Courses for breeders and non-veterinary workers (NVW), such as farmers and slaughterhouse workers, are organized under the patronage of the HVK and UVMP. Members of the Faculty staff are also involved in CPE courses for NVW, and in relation to the number of veterinarians, there are approximately 25% of NVW in the CPE process.

11.3 SUGGESTIONS

In order to maintain the high professional level of CPE courses, there is a need for continuous improvement of the LLP system, as well as QCS (Quality Control System) in all forms of continuing education. Implementation of Action plans which would bring up-to-date topics of professional progress at the first place of relevance for all CPE & CEFS courses is of great importance to the Faculty. Action plan guidelines for improvement of continuing education systems on FVMUZ are listed in the Strategic Plan of the Faculty Development (SPFD) in subchapter 7.3 *Improvement of professional activities* (see SPFD, page 23).

CHAPTER 12. POSTGRADUATE EDUCATION













Chapter 12. POSTGRADUATE EDUCATION

This heading covers all further training leading to a diploma - special postgraduate studies, Ph.D. courses, research training programmes, and national or European College specialised qualifications. Please provide details of all postgraduate training opportunities in tabular form under "Factual Information".

12.1 FACTUAL INFORMATION

In the last five years, a unitary 3-year Doctoral Study in Veterinary Sciences (DSVS) has been organized (six semesters, 180 ECTS), as well as 13 different postgraduate university specialist studies (four semesters, 120 ECTS). The list of available postgraduate university specialist studies (PUS) with academic degrees acquired is presented in Table 12.1. All postgraduate studies have the Accreditation issued by the Ministry (MZOS) in May 2008 (see Introduction).

Name of postgraduate specialist study	Academic Title (degree acquired)	Number of ECTS	Duration of the study in years
Pathology and Breeding of Domestic Carnivores	Univ.mag.med.vet. (Univ. mag.carniv.dom.)	min. 120	2 years
Theriogenology of domestic mammals	Univ.mag.med.vet. (Univ.mag. theriogen.)	min. 120	2 years
Laboratory Animals Breeding and Pathology	Univ.mag.med.vet. (Univ.mag.animal.lab.)	min. 120	2 years
Internal diseases of domestic animals	Univ.mag.med.vet. (Univ.mag.morb.int.)	min. 120	2 years
Game Breeding and Pathology	Univ.mag.med.vet. (Univ.mag.alit.fer.)	min. 120	2 years
Sanitation	Univ.mag.med.vet. (Univ.mag.sanit.)	min. 120	2 years
Surgery, orthopaedics and ophthalmology with anaesthesiology	Univ.mag.med.vet. (Univ.mag.chirurg.)	min. 120	2 years
Hygiene and Technology of Foodstuffs" of Animal Origin	Univ.mag.med.vet. (Univ.mag.aliment.animal.)	min. 120	2 years
Swine Production and Health Care	Univ.mag.med.vet. (Univ.mag.hyol.)	min. 120	2 years
Microbiology and epizootiology	Univ.mag.med.vet. (Univ.mag.microbiol.epizo- otiol.)	min. 120	2 years
Exotic & Pet Animals Breeding and Pathology	Univ.mag.med.vet. (Univ.mag.animal.exotic.)	min. 120	2 years
Veterinary pathology	Univ.mag.med.vet. (Univ.mag.pathol.vet.)	min. 120	2 years
Animal welfare	Univ.mag.med.vet. (Univ.mag. benef. animal.)	min. 120	2 years

Table 12.1: List of available postgraduate university specialist studies at the FVMUZ

In cooperation with the Faculty of Veterinary Medicine, University of Sarajevo, a joint-degree postgraduate study *Veterinary public health management* was initiated (*Document number: 01-38-2364, Class: 02-07-720-3/11*). The approval for this programme by the UNIZG Senate is expected to be ready for the academic year 2013/14.

12.1.1 CLINICAL SPECIALTY TRAINING (INTERNS AND RESIDENTS)

The residency program is not applicable at the moment.

At the Faculty there are five full-time teachers who are members of one of the European Colleges recognized by EBVS (listed below). At the moment the Faculty is not ready to organize Residency programme, due to insufficient number of active *Diplomates*. However, the plan of FVMUZ is to educate young teachers at recognized European Colleges, expecting to have at least one active *Diplomate* at each FVMUZ Clinic in next five years. Members of FVMUZ permanent staff holding the *Diplomate* title acquired at one of the EBVS recognized Veterinary Colleges:

Name of Diplomats	EBVS recognized Veterinary Colleges
Assist. Prof. Konjević Dean, DVM, PhD	European College of Zoo Medicine - Wildlife Population Health (ECZM-WPH)
Asoc. Prof. Lemo Nikša, DVM, PhD	European College of Veterinary Dermatology (ECVD)
Full Prof. Marinculić Albert, DVM, MSc, PhD	European Veterinary Parasitology College (EVPC)
Full Prof. Estella Prukner Radovčić, DVM, PhD	European College of Zoo Medicine - Avian Section (ECZM-AS)
Full Prof. Alen Slavica, DVM, MSc, PhD	European College of Zoo Medicine - Wildlife Population Health (ECZM-WPH)

As the introduction of the Internship programme, suggested by visitation team of EAEVE in its final report from 2002 (*see EAEVE GE Report on the Visit to the Veterinary Faculty of Zagreb, 12.2 Comments – Postgraduate Clinical Training, page 68*), the Commission for Internship programme development worked out elaboration for 'Small Animal Practice' Internship (plan and programme available at FVMUZ Clinics). The Faculty has not been able to implement the designed programme until this academic year due to inadequate state legislation, which does not anticipate this kind of specialized clinical practice. The Ministry (MZOS) announced the possibility of employment for young graduates of all professions through its programme "From University to work" in 2012. However, this opportunity was not applicable for the public sector, and therefore the Faculty could not use the above mentioned programme. It is expected that when Croatia joins the EU, the legislation would allow hiring of Interns, so the FVMUZ Internship programme would become a foundation for the future Residency programme, intending to be realized in the next five-year period.

Indicate whether students involved in this training receive a grant or a salary.

Students currently do not have the opportunity for scholarships for this kind of training. As previously mentioned, Croatian legislation does not recognize this form of professional education which has been exclusively proposed in Croatia only by the Faculty of Veterinary Medicine. Foreign students can receive scholarships from their home countries, and they can also win one of the scholarships from EU mobility funds. The Faculty is planning to provide the Interns with the possibility of partial funding - from FVMUZ own revenue, up to 40% of the total salary.

12.1.2 RESEARCH EDUCATION PROGRAMMES

Type of degree	Full-time	Part-time	Duration	TOTAL
PhD, VETERINARY SCIENCES	43	85	3yrs	128
Postgraduate Specialist Studies	1	170	2yrs	171
TOTAL	44	255		299

Table 12.2: Number of research students enrolled in different programmes

Doctoral study

Pursuant to the Act on Science Activity and Higher Education ("Official Gazette" 123/03) which introduced changes in organization of doctoral studies and taking into consideration the remarks of the EAEVE GE from March 2003, the development of a new postgraduate doctoral study plan was initiated. In its report (see EAEVE GE Report on the Visit to the Veterinary Faculty of Zagreb, 12.2 Comments – Postgraduate Research

Training, pages 67, 68) the visitation team stated that the postgraduate doctoral study at the Faculty is organised on a departmental basis, without necessary coordination which was leading to inappropriate use of scientific equipment and deficiency in training of doctoral candidates. Furthermore, the evaluation report by the National Committee for Universities Evaluation appointed by the Ministry (MZOS) of the Republic of Croatia has also taken into consideration. The Committee visited the Faculty in the period of December 17th to 19th 2003 for the purpose of evaluation of training quality and reported that subjects of different programmes of the Faculty's postgraduate studies quite often overlap in certain parts of the curriculum. Taking into account the stated facts, a new Doctoral Study in Veterinary Sciences (DSVS) programme was created with the more appropriate concept, which better suits the interests of both students and teachers. Also, DSVS programme has been organised according to ECTS system.

At the moment, 128 doctoral candidates are studying according to the new DSVS programme which was designed during academic year 2005/06, and finally accredited by the Ministry (MZOS) in 2008. Pursuant to the new Regulations on Doctoral Studies (*see FVMUZ web address*: <u>http://www.vef.unizg.</u> <u>hr/en/documents/regulations_on_doctoral_studies.pdf</u>) in the academic year 2010/2011 the Council for Doctoral Study (CDS) was established, constituted of seven full-time professors selected according to their scientific competencies, also taking into consideration that each of the four FVMUZ Divisions should be equally represented in the Council. The CDS holds its sessions once a month, and all work is done accordingly to the Rules of Conduct of the Council for Doctoral Study, as well as the Regulations on Doctoral Study. During the last academic year, the preparations for implementation of a procedure for the public defence of dissertation theme were made. This procedure will be obligatory for all the candidates enrolled DSVS programme from academic year 2010/2011.

For full-time doctoral students, the study usually lasts three years, and it may be extended up to maximum five years. For part-time students, the study usually lasts five years, and due to reasonable arguments, it may be extended to seven years. The costs of the DSVS for the full-time doctoral students, who are employed at the Faculty as young researchers, are covered by the Ministry (MZOS). Other students cover the costs from different sources (scholarships, refund from the institutions they work for, or by themselves).

The basic feature of new DSVS programme is the research-oriented teaching covering a wide area of veterinary science and it is simultaneously adaptable to the all kind of individual dissertation topic(s). The study includes three credit groups. Two credit groups refer to the common core skills subjects (group I) and branch oriented subjects (group II), while the third credit group covers scientific activities of students.

1st **Credit Group** - This group consists of general obligatory and elective subjects, which are the framework of the entire study. General obligatory group consist of the basic - common core subjects which forming the foundation of scientific work. These subjects provide students with basic knowledge on how to access the scientific work, and the essential principles necessary for the conducting of the scientific research. Due to the large number of different scientific methods, students can also choose specific methodological subjects from the group of general elective subjects. From the total number of credits required for the submission of the dissertation, the subjects from this group participate with at least 30 ECTS. The student is required to collect 25 ECTS from the group of obligatory methodology subjects and 5 ECTS points from a group of elective subjects.

2nd **Credit Group** - This group consists of branch oriented elective subjects. The purpose of these subjects is to training the students to fully understand the theory & practice of scientific problems in specific branch, leading them to creativity in scientific work. Full electability of branch oriented subjects enables students to acquire specific knowledge in accordance with their scientific interests and topic chosen for dissertation. With the recommendation from their mentors, students choose subjects from this credit

group. There are many elective subjects offered in this group, each carrying certain number of ECTS. Students take the required exams from this credit group in the second, third and fourth semester. This credit group also includes subjects from the fund of organized university studies, chosen according to preferences and needs of each individual student.

3rd Credit Group - The third credit group covers scientific activity of students during studies, relating to publication of scientific papers in the relevant scientific journals and students' contribution at national and international conferences.

During their study, the students may choose among numerous elective and branch subjects in order to achieve the needed number of ECTS from direct classes. Direct classes bring 60 ECTS which student should collect during the first three semesters of the study. This means that a student should earn 25 ETCS for subjects enrolled in the first semester, 20 ETCS for subjects enrolled in the second semester, and 15 ECTS for the third semester through direct classes (lectures, seminars and practical work). The remaining 120 ECTS should be earned through students work on dissertation, participation at conferences and writing papers. For a scientific paper published in journals listed in *Current Contents* (CC) and *Science Citation Index & SCI Expanded*, a student earns six credits as a first author, and four credits as a co-author. For a paper published in journals indexed in other index bases (such as CAB *Abstracts, Biological Abstract*), a student earns four credits as a first author and three credits as a co-author. For participation at domestic professional/scientific conferences with oral or poster presentation, a student earns four credits. Thus earned credits are included in the total required credits for fourth, fifth and sixth semester of the study.

The potential number of scientifically qualified mentors is equal to the number of teachers and associates at a doctoral study with corresponding scientific title (PhD). Once a year mentors should submit a report on progress of their doctoral candidates (Form DR.SC.-05) and candidates also submits their report (Form DR.SC.-04) on his/her progress and the quality of their mentor(s). Annual report on efficiency of the DSVS programme of FVMUZ is submitted to the University as well (Form DR.SC.-09). Quality control of the DSVS programme is carried out in each semester by the analysis of forms: DR.SC.-01, DR.SC.-02 and DR.SC.-03, as well as by monitoring scientific productivity of doctoral candidates and their mentors. All the forms are available on the Faculty web site (*see FVMUZ site*: http://doktorski.unizg.hr/dokt/obrasci/dr.sc.--_english).

Postgraduate specialist studies

There are 13 postgraduate specialist studies currently available at the Faculty. The Council for Specialist Studies (CSS) is in charge of specialist studies, according to the valid regulations, composited of Heads of specialist studies and Vice-Dean for Quality Control and Continuing Education. The CSS acts on the basis of Regulations on Postgraduate Specialist Studies (*see FVMUZ site*: <u>www.vef.unizg.hr/en/documents/regulations_on_postgraduate_specialist_studies.pdf</u>).

In total, 41 students are enrolled in first semesters of different specialist studies in the academic year 2011/2012, and the total number of students on postgraduate specialist studies is 171. During the last academic year, 31 candidates acquired the title of University specialist (*Univ. mag. med. vet.*), while 12 students enrolled in postgraduate specialist study in Surgery, Orthopaedics and Ophthalmology with Anaesthesiology acquired the titles of University specialist of Surgery (*Univ. mag. chirurg.*) upon taking the final exam. For all of the postgraduate specialist studies accredited during 2008, the University starts reaccreditation procedure every five years. In according with this procedure FVMUZ postgraduate specialist studies will be subjected to evaluation procedure in the second half of 2013, by the National Visitation Team (NVT). This evaluation is going to be the opportunity for every Head of specialist study to evaluate the success of each subject's teachers, mentors and teaching programme, and to implement possible necessary changes in accordance to the outcomes of evaluation, all in purpose to improve the postgraduate specialist studies.

Please indicate - when and where and whether the students require a grant or salary.

Pursuant to the Scientific Activity and Higher Education Act ("Official Gazette" 63/11), there has been a possibility of getting a special form of benefit scholarship for young researches, who were exempted from payment of the costs of doctoral study by the Ministry (MZOS). Also, the employees of the Ministry of Agriculture were given scholarships from the World Bank aimed to improve the education level of employees of the aforementioned Ministry. Doctoral candidates employed in veterinary clinics or in private sector could gain scholarships from the company they are employed with, while foreign doctoral candidates could gain scholarships from their countries or from EU funds.

12.2 COMMENTS

Comment on the number of postgraduate diplomas/titles awarded annually.

The number of postgraduate titles acquired in the last four academic years is constant. After an analysis of postgraduate studies successfulness indicated that a very small number of candidates finished their specialist studies on time (*see National SER, academic year 2007/2008*), a process of modernization of postgraduate specialist studies was initiated. The aforementioned Self-analysis carried out for national evaluation, stated low number of diplomas/titles awarded annually (*National SER, academic year 2007/2008*: *"In the last application round according to the new programme, the total of 26 students enrolled in the postgraduate studies. The flow of students so far has not been favourable. There are studies, which enrolled their first students in the academic year of 2005/2006, with not a single student graduated. Also, only nine students attended all the classes. Most of the students who had not finished studies had their master thesis approved").*

The Faculty started with accredited PUS in academic year 2008/09, and since then "Enrolment/Titles awarded" (E/Ta) ratio shows constant growth. The improvement of the students flow in postgraduate specialist studies during the last four academic years can be seen in Table 12.2.1, in which the academic year 2011/2012 stands out with the high number of acquired academic titles. In that academic year, a possibility was granted by the University of Zagreb, on the basis of Regulations on Specialist Studies, that candidates who passed all the exams could choose whether they would finish the PUS programme by producing a specialist thesis, or by taking the final exam.

ACADEMIC YEAR	STUDENTS ENROLLED IN 1st SEMESTER OF SPECIALIST STUDIES	TOTAL NUMBER OF ACQUIRED DIPLOMAS
2008/2009	33	11
2009/2010	56	10
2010/2011	48	13
2011/2012	41	31

Table 12.2.1: The number of enrolled students and postgraduate diplomas/titles awarded annually in the last four years on postgraduate specialist studies

At the same time, significant improvement of E/Ta ratio can also be seen in the postgraduate doctoral study, in which we had only four doctoral candidates in academic year 2000/2001 (*see FVMUZ SER, 2002, page 114*). In academic years after the introduction of the new PDS programme in Veterinary Sciences (2008/09), the Enrolment/ Title awarded ratio was much better (see Table 12.2.2).

Table 12.2.2: The number of enrolled students and diplomas/titles awarded in the last four academic years on DSVS programme

ACADEMIC YEAR	STUDENTS ENROLLED IN 1st SEMESTER OF VETERINARY SCIENCES	TOTAL NUMBER OF PhD TITLES AWARDED
2008/2009	46	24
2009/2010	18	20
2010/2011	40	27
2011/2012	15	18

Higher number of enrolled students in academic year 2008/2009 was a result of the new doctoral (DSVS) programme for which the Accreditation was issued in 2008, while the greater number of doctoral candidates in the academic year 2010/2011 was a result of successful realization of World Bank scholarships for the employees of the Ministry of Agriculture.

The total number of diplomas in all postgraduate studies (Table 12.2.3) shows the permanent number of acquired academic titles in the last four years, with an average of 38 diplomas/titles awarded per year.

Table 12.2.3: The number of acquired diplomas/academic titles in the last four years on postgraduate studies on the FVMUZ

ACADEMIC YEAR	2008/2009	2009/2010	2010/2011	2011/2012
Specialization Studies	11	10	13	31
Doctoral Study	24	20	27	18
TOTAL	35	30	40	49

The total number of all postgraduate diplomas/titles awarded at FVMUZ is showing slow & constant tendency of growth.

Comment on the percentage of veterinarians participating in postgraduate research training programmes.

One of the main preconditions for successful postgraduate research training programmes of veterinary professionals is continuation of education after acquiring the DVM diploma. According to the data from the first EAEVE GE visit (*see FVMUZ SER 2002, page 115*) there was the total number of 66 students enrolled in FVMUZ postgraduate studies in the academic year 2000/2001. The 62 of them were enrolled on the Master's level, and four on PhD level. In academic year 2011/2012, prior to arrival of actual EAEVE GE, in all postgraduate studies at FVMUZ there were 56 students enrolled in the first semester of the different studies, 41 in the first semester of postgraduate specialist studies (PUS) and 15 of them in the first semester of doctoral study (DSVS). The total number of enrolled students in all the semesters of postgraduate studies in academic year 2011/2012 at FVMUZ is 299, from which 171 students are on PUS, and 128 students are on DSVS.

If we compare the number of graduate DVMs and the number of all the students enrolled in all programmes of postgraduate studies in the last four academic years, we get an average value of 75% graduated students who decided to continue their education on postgraduate studies (45% on PSS and 30% on DVSV). We would like to mention that average value should be viewed with attention, due to the fact that candidates with the DVM title decide to enrol postgraduate studies at different age, so part of enrolled postgraduates does not belong to the group of students who graduated in the last four generations.

12.3 SUGGESTIONS

An initiative to form one Doctoral School comes from the University, with the possibility of forming the clusters. In the prospective Doctoral School the Veterinary Sciences will be the part of Biomedicine cluster. The proposed form of organization would decrease the number of administrative staff and enable further improvement of the DSVS programme, what is in accordance with recommendations written in the first EAEVE GE report (*see Final Report on the Visit to Veterinary Faculty of Zagreb, 12.3. Suggestions – article 12.2, page 68*). Periodical national evaluation of doctoral studies at UNIZG is being performed every five years. According to the UNIZG and FVMUZ development plan in the forthcoming reaccreditation cycle starting in 2013, main goals are going to be: attracting the foreign students, introduction of quality control system, as well as gain scientific excellence, relevancy and rationality. In accordance with the strategic guidelines from the University, the goal is to achieve sustainability of postgraduate doctoral education with joint usage of available research and teaching resources, by reducing costs of the study and opening new lines of financing (state and EU funds).

CHAPTER 13. RESEARCH











Chapter 13. RESEARCH

The details requested under this heading relate only to research experience offered to students during their undergraduate training, for example through project work.

Preparation and writing of Graduation thesis ("Diplomski rad") under the supervision of a mentor (full-time permanent member of the Faculty staff with scientific-educational title) is obligatory for all students who have reached the final stage of their study and passed all of the examinations. Students can pick a topic of their thesis upon enrolling in sixth semester, and according to the Regulations on graduation thesis (Document: Clasis: 012-03/08-61/1) they have to formally register the topic of the thesis at least six months prior to taking the last exam. Cooperation between teachers and students in the production of graduation thesis is being encouraged by the "Conditions of Faculty Teachers Advancement" ("Official gazette" 106/06) determined by the Rector's Collegium of the UNIZG (http://www.vef.unizg.hr/opce/dok/odluke/odluka_ nuzni_uvjeti_znan_nastavna_zvanja_106_06.pdf) in which one of the conditions for the advancement of faculty teachers is publishing scientific papers in cooperation with students. During their undergraduate education, students can join the research groups as student demonstrators from the 3rd to the 11th semester of study, as well as participate in National Research Projects (NRP) of the Faculty which are grouped in six programme clusters. Producing scientific papers in cooperation with teachers enable students to compete for Rector's and Dean's Awards. Students can also participate in different research conducted in cooperation with the Faculty staff, publish the obtained results in "Veterinarian" - magazine for students of veterinary medicine, as well as give oral/poster presentations at the International congress "Veterinary Science and Profession" organized by the Faculty and held bi-annually. We would like to emphasize the academic year 2010/2011 in which the special Rector's Award for promotion of Science was given to the magazine "Veterinarian" (Croatian name: "Veterinar" ISSN: 0303-5409, Vol. 49) scientific and professional publication of the Association of students of veterinary medicine.

13.1 FACTUAL INFORMATION

Indicate the involvement of undergraduate students in research, including the time spent, percentage of students involved and outcome required.

Participation of students in scientific work during the production of the Graduation thesis lasts from three to six months, depending on the complexity of research. Students are allowed to choose between an original (*Izvorni diplomski rad*) or a review (*Pregledni diplomski rad*) thesis, according to the Regulations on graduation thesis. At the FVMUZ the trend of preparing an original thesis has been constantly rising in the last decade. While ten years ago it was emphasized in the Self Evaluation Report that a small number of theses was associated with scientific research (*see SER FVMUZ 2002, Chapter 13, Comments, page 123*), in the last three academic years, an average of 55 % of the theses were classified as original students' scientific work.

GRADUATION THESES					
Academic year	ORIGINAL WORK	REVIEW			
2009/2010	52	41			
2010/2011	61	50			
2011/2012	41	34			
Tatal	154 (55.2%)	125 (44.8%)			
lotai	279				

Table 13.1: The number of graduation theses in the last three academic years regarding the classification of the thesis

The number of graduation theses in the last three academic years, presented according to the EU classification of subject groups in veterinary medicine curriculum, is shown in the Table 13.2.

Table 13.2: The number of graduation theses in the last three academic years according to the EU classification of subject groups in veterinary medicine curriculum

SUBJECT GROUP	2009/2010		2010/2011		2011/2012
Programme	Graduate	Graduate*	Integrated undergra- duate and graduate**	Graduate*	Integrated undergraduate and graduate**
Basic subjects	10	11	-	4	6
Animal production subs.	9	5	1	4	2
Clinical subjects	64	77	5	34	16
Food hygiene subjects	5	3	1	3	1
Professional knowledge subs.	5	8	-	4	1
Total	93	104	7	49	26
Total		1	11		75

* - number graduating ("old curriculum") ** - number graduating ("new curriculum")

Students with the best grade point averages participate in the practical part of training as demonstrators and are sometimes included in the scientific work of the Division/ Department/ Clinic.

The tradition of involvement of student demonstrators in the practical part of teaching and scientific research at the Faculty is forty years old (started in early seventies). The number of demonstrators at FVMUZ in the last three academic years is shown in the Table 13.3.

Academic Year	Winter semester	Summer semester	Total
2009/10	43	34	77
2010/11	36	29	65
2011/12	39	31	70
Total	118	94	212

Table 13.3: Number of student demonstrators in the last three academic years

Undergraduate students participating in research work are encouraged to compete for the Rectors' Award granted by the University, and the Dean's Award granted by the Faculty each year. According to the Regulation on the Rectors' Award a Committee for students' cientific work (<u>http://www.vef.unizg.hr/opce/dok/pravilnici/pravilnik_o_dodjeli_rektorove_na.pdf</u>) consisting of five members has been formed at the Faculty every year. Among all student works the Committee chooses Top-ten FVMUZ scientific works which are qualified for the final round at UNIZG, and University committee chooses the best student works for the Rectors' Award. Regulation on the FVMUZ Awards prescribes the rules for choosing the best research works which will be granted the Deans' Award.

Table 13.4: Number of students who received Rectors' and Deans' Awards for the best research works during the last three academic years

AWARDS	2009/10	2010/11	2011/12	Total
Rectors'	8	6	5	19
Deans'	11	14	27	52
TOTAL	19	20	32	71

There are between 25 and 50 students of the Faculty competing for the best students' works each year. Students, involved in research with the Faculty staff, compete for the awards, publish their works and actively participate in the international research and teaching congress "Veterinary Science and Profession", and they make approximately 30 percent of the average number of graduated students (see Chapter 9, Table 9.4a = 98.2).
The Faculty organizes the International congress "Veterinary Science and the Profession" (VSP) bi-annually. The VSP Congress was initiated by active (younger) teachers of the Faculty during the 70's, aiming to give a chance to young researches, teachers and students for the presentation of the research results in front of a wide audience. During the 90's (The Homeland War), the VSP Congress lost its importance and the activities were reduced to minimum. It was restored in 2005 and ever since it has been regularly held every second year. The basic idea for the reactivation of the VSP Congress was recreating the opportunity to engage younger teachers and students to actively participate in scientific research. The VSP Congress became international in 2011, and for the International congress "Veterinary Science and the Profession 2013" planned for October this year, over 200 participants from approximately ten countries are expected.

13.2 COMMENTS

Comment on the opportunities for students to participate in active research work.

Possibilities for active participation in the scientific work of students depends primarily on the scientific production of teaching staff who act as mentors to students interested in scientific research. As stated in the Self Evaluation Report 2002, research activities of the Faculty were based on individual scientific projects, mostly without involvement of departments or clinics (see FVMUZ SER, Chapter 13, Subchapter 13.1 Factual information). Taking into consideration the suggestions given by the EAEVE GE, the Committee for projects proposed the Faculty priorities in scientific work in five-year period (2007-2012). According to the priorities six programme clusters with the total of 46 projects were applied to the last "National call for scientific projects".

The six programme clusters are:

- Hygiene, Quality and Safety of foodstuffs of animal origin in the frame of EU
- Swine health and breeding: immunologic, biotechnological and biomedical criteria
- Comparative oncology
- Infertility prevention in cows in purpose of production improvement
- Health of birds, humans and environment
- Protozoan diseases from epizootiology to therapy
- Applied biomedical research on game in Croatia

The programmes are determined in accordance with the strategic guidelines for improvement of scientific productivity of the University of Zagreb. There are 34 junior researchers employed on the aforementioned projects, allocated by divisions with regard to the workplace of the head of the project. Scientific productivity by divisions for the last three academic years is shown in Table 13.5.

Table 13.5: Scientific productivity by divisions for the last three academic years

YEAR/PERIOD	2009 - 2011	2009 - 2011		
Faculty Divisions	No. of publications (A category*)	Citations (web of science)		
Basic and Pre-clinical Sciences Division	120	433		
Animal Production and Biotechnology Division	107	213		
FVMUZ Clinics Division	169	228		
Veterinary Public Health and Food Safety Division	94	203		
TOTAL	490	1077		

* A category of publications – scientific papers published in periodicals quoted in CC, SCI and SCI Expanded

The total scientific productivity by projects over the five-year period (2007-2012) is available at FVMUZ web page (see: http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 http://www.vef.unizg.hr/organiz/vijece/zapisnici/zapisnici.php?adnce=d&m=f8ffe0064f8 <b href="http://www.vef.unizg.hr/organiz">http://www.vef.unizg.hr/organiz <b href="http://www.vef.unizg.hr/organiz">http://www.vef.unizg.hr/organiz <b href="http://www.vef.unizg.hr/organiz">http://www.vef.unizg.hr/organiz <b href="http://www.vef.u

	Academic year			TOTAL
PUBLICATIONS	2011/2012	2010/2011	2009/2010	TUTAL
Articles published in the journals indexed in CC, SCI & SCI Expanded	2	2	5	8
Articles published in the journals indexed in other (secondary) sources	13	26	17	54
Articles published in Proceedings of the International Conference	16	4	15	35
Articles published in Proceedings of the Domestic Conference	5	1	-	6
TOTAL	33	33	37	103

Table 13.6: Number of scientific papers co-authored by students and teachers in the last three academic years

Will students be given more opportunity to participate in research activities? If so, how will this be done?

Improvement of scientific research is one of the strategic guidelines of the Faculty, listed in the Strategic Plan of the Faculty Development (SPFD) in subchapter 7.2 *Improvement of scientific activities* (see SPFD, page 19) which imply more intensive involvement of students in scientific research at the Faculty. Apart from the previously mentioned activities in research work, students will be involved in the realization of the International congress "Veterinary Science and the Profession 2013" in October. During the last meeting of the members of VetNEST (Vienna, September 2012) it was agreed that all the faculties/ universities included in VetNEST (Vienna, Budapest, Ljubljana, Košice, Brno, Wroclaw, Zagreb) should participate in organization of "Veterinary Science and the Profession 2013" and send their teachers and students to the congress, which is going to be held at FVMUZ. This year's congress will have a separate "Student's section" during which the students will have an opportunity to present the results of their scientific research to an international audience. Also, the Faculty encourages scientific research of students within the framework of summer international schools, during which the FVMUZ students, along with their international colleagues, are introduced to the scientific research methods in the field of Farm animals & Horses, Small animal practice and Exotic & Wild animals.

Documents on the national level:

- 1 Act on quality assurance in science and higher education, (Official Gazette 45/2009);
- 2 Act on academic and professional titles and academic degree, (OG107/2007);
- 3 Rector's conference list of academic titles and degrees and their abbreviations based on the act (OG107/2007);
- 4 Law on regulated professions and recognition of foreign professional qualifications (OG124/2009);
- 5 Scientific activity and higher education act (OG123/2003, 198/2003, 105/2004, 174/2004, 02/2007, 46/2007 and 45/2009);
- 6 Institutions act (76/1993, 29/1997, 47/1999 and 35/2008);
- 7 Veterinary act (OG41/2007 and 155/2008);
- 8 Law on libraries (OG105/1997);
- 9 Amendment to the law on libraries (OG5, 1998);
- 10 Law on amendments to the law on libraries (OG104, 2000);
- 11 Law on amendments to the law on libraries (OG69, 2000);
- 12 The Statute of the University of Zagreb, February, 2005);
- 13 The Statute of the Faculty of Veterinary Medicine, Final draft, 7 December, 2012);
- 14 AZVO (Agency for science and higher education (2008): Handbook on external, independent evaluation of quality assurance system (audit) of higher education institutions in Croatia <u>http://www.azvo.hr/default.aspx?sec=201;</u>
- 15 Rules of procedure on the work of committee for graduate education of the Faculty of veterinary medicine, UNIZG
- 16 Regulations on the mobile clinic of the Faculty of veterinary medicine, UNIZG;
- 17 Regulations on the evaluation procedure of the study programs of university undergraduate, graduate, integrated undergraduate and graduate and professional studies of the UNIZG, July, 2010;
- 18 Regulations on the grant of rector's award, UNIZG, February 2009);
- 19 Regulations on international mobility, March, 2010;
- 20 Regulations on quality assurance system, May, 2011;
- 21 Regulations on the state matura exam (OG87/2010);
- 22 Regulations on integrated undergraduate and graduate study at the Faculty of veterinary medicine, October, 2008);
- 23 Amendments to the regulations on integrated undergraduate and graduate study, February 2010;
- 24 Regulations on postgraduate specialist studies, 2011;
- 25 Regulations on doctoral studies, 2010;
- 26 Regulations on doctoral studies, UNIZG, 2010;
- 27 Regulation on the conditions for election into scientific titles (OG84/2005);
- 28 Regulation on the organization and work of regional councils and field committees (OG76/2005);
- 29 Regulation on scientific and artistic areas, fields and branches (OG118/2009);
- 30 Regulations on international mobility, UNIZG, March, 2010;
- 31 Regulations on the election of teachers and associates into titles and job positions
- 32 Regulations on standards and criteria for assessing the quality and efficiency of higher education institutions and study programs (OG139/2005);
- 33 Regulations on the content of accreditation and conditions for issuing accreditation for the conduct of higher education, conduct of the study programs and reaccreditation of higher education institutions (OG24/2010);

- 34 Regulations on the requirements for veterinary organizations, veterinary practice and veterinary services in the system in the implementation of veterinary activity (OG45/2009, 80/2010 and 153/2011);
- 35 Regulations on undergraduate and graduate studies, UNIZG, 2008;
- 36 Regulations on postgraduate studies at the Faculty of veterinary medicine, 22 December, 2010;
- 37 Regulations on doctoral studies at the Faculty of veterinary medicine, December, 2010;
- 38 Regulations on university instructional literature and publishing activity, UNIZG, 2011;
- 39 Regulations on the election procedure and rights of professors elected to an honorary title of *professor emeritus*, the Faculty of veterinary medicine, October, 2011;
- 40 Regulations on the organization of job positions, 2008;
- 41 Statute of the national and university library in zagreb;
- 42 Statute of the Croatian library association
- 43 Regulations on the basics of financing higher education in public higher education institutions (OG25/1996);
- 44 Regulations on university instructional literature. UNIZG, February 2010;
- 45 Regulations on the content and method of registration of higher education institutions (OG62/1996);
- 46 Decision on the minimum conditions for evaluation of teaching and professional activity in the procedure of election into scientific-educational titles (OG106/2006);
- 47 Decision on the minimum conditions for evaluation of teaching and professional activity in the procedure of election into educational titles (OG106/2006);
- 48 Decision on the amendments to decision on the minimum conditions for evaluation of teaching and professional activity in the procedure of election into scientific-educational titles (OG85/2007);
- 49 Decision of the Rector's conference on the academic title or academic degree acquired by the study (OG, 2007);
- 50 Decision of the Rector's conference on the form and method of conduct of inaugural lecture for election into scientific-educational, artistic-educational and educational titles (OG129/2005);
- 51 Decision on the conduct of classes by UNIZG teachers at Croatian and foreign higher education institutions, UNIZG, July, 2009;
- 52 ollective agreement for science and higher education, October, 2010;
- 53 National council for higher education (2007): Procedure for evaluation of higher education institutions,
- 54 National council for higher education (2007): Criteria for evaluation of higher education institutions within UNIZG
- 55 National council for higher education (2007): Instructions for the preparation of Self-analysis of higher education institutions within UNIZG
- 56 National council for higher education (2007): Instructions for the preparation of Tables for Self-analysis of higher education institution within UNIZG







FACULTY OF VETERINARY MEDICINE

University of Zagreb Heinzelova 55, 10000 Zagreb, tel. 385-1-2390-111, fax. 385-1-2441-390 Ref. No: 36389528408



FACULTY OF VETERINARY MEDICINE

University of Zagreb Heinzelova 55, 10000 Zagreb, tel. 385-1-2390-111, fax. 385-1-2441-390 Ref. No: 36389528408