



UNIVERSIDADE
DE LISBOA



FACULDADE DE MEDICINA VETERINÁRIA
UNIVERSIDADE DE LISBOA



EAEVE

Lisbon, 2024

Self-Evaluation Report

www.fmv.ulisboa.pt



TABLE OF CONTENTS

Introduction.....	1
1. Objectives, organisation and Quality Assurance policy.....	5
2. Finances.....	17
3. Curriculum.....	23
4. Facilities and equipment.....	37
5. Animal resources and teaching material of animal origin.....	51
6. Learning resources.....	61
7. Student admission, progression and welfare.....	65
8. Student assessment.....	73
9. Teaching and support staff.....	79
10. Research programmes, continuing and postgraduate education.....	87
List of ESEVT Indicators.....	97
Glossary	
List of Appendices	



INTRODUCTION

Brief history of the Establishment

The first Portuguese University was established in Lisbon in 1288, moving to Coimbra in 1537. Higher education was only re-established in Lisbon in the late eighteenth century. The University of Lisbon (UL) was founded during the first Republic, in 1911, followed by the Technical University of Lisbon (UTL) in 1930. July 2013 saw the birth of the present **Universidade de Lisboa (ULisboa)**, as a result of a merging process between UL and UTL, to optimize the synergies between the academic, scientific and cultural traditions of both institutions.

As a privileged nest of science, knowledge and culture, ULisboa is today the largest and most prestigious university in Portugal and one of the major institutions of Higher Education in Europe, with 18 Faculties or Institutes, **4,138 teachers** (2,779.5 FTE), **608 researchers** (596.65 FTE), and **51,917** students, including 32,744 undergraduate and integrated master students (1st + 2nd cycle), 14,212 master students (2nd cycle) and 4,961 PhD students (3rd cycle). With an annual budget of 493.6 million € in 2024, ULisboa offers 453 Programmes, including 102 Graduation (Licenciatura), 7 Integrated Master, 209 Master, and 135 PhD degrees.

The **Faculty of Veterinary Medicine (Faculdade de Medicina Veterinária – FMV)** is one of the oldest Schools of ULisboa, initially founded as the Royal Military Veterinary School in 1830. Later, in 1886, the Veterinary Medicine course was established in the Institute of Agronomy and Veterinary Medicine, which was split into the School of Veterinary Medicine and the Institute of Agronomy in 1910. These Schools joined in the foundation of UTL in 1930, with the denomination Higher Education School of Veterinary Medicine (Escola Superior de Medicina Veterinária) and Higher Institute of Agronomy (Instituto Superior de Agronomia) and later, joined the foundation of ULisboa in 2013. The current institutional name – FMV – was registered in 1989.

Previous ESEVT Visitations

FMV is a founder member of the European Association of Establishments of Veterinary Education (EAEVE). Together with 10 other European Schools, FMV volunteered to be evaluated in a Pilot Study. Hence, FMV prepared an auto-evaluation report, was visited by a team of experts in November 1989, and was included in the EAEVE Approved List of European Veterinary Schools at that time.

FMV was further visited by the European System of Evaluation of Veterinary Training (ESEVT) in **May 2004**. The recommendations of the expert team, set in the evaluation report, motivated FMV to invest considerable **efforts to improve the quality of the Veterinary Medicine programme addressing the raised concerns**. The chairman of the evaluation team and the president of EAEVE re-visited FMV in October **2007**, and FMV was again included in the EAEVE list of approved faculties.

FMV was revisited by ESEVT on **9-13 October 2017**. No Major Deficiencies were detected and only three Minor Deficiencies were pointed out by the Full Visitation Team. Therefore, on 28 November 2017, the European Committee of Veterinary Education (ECOVE) decided that the status of the Faculty of Veterinary Medicine, University of Lisbon was **ACCREDITATION**.

The Veterinary Education at **FMV was also evaluated at a national level**, by the competent organizations:

- a) In 1999, by the Evaluation Council of the Foundation of Portuguese Universities,
- b) In 2004, simultaneously with the ESEVT assessment, by the National Council for the Evaluation of Higher Education (Conselho Nacional de Avaliação do Ensino Superior, CNAVES),



- c) In 2015 and in 2021, by the Agency for Assessment and Accreditation of Higher Education (Agência de Avaliação e Acreditação do Ensino Superior, A3ES).

All these evaluations approved the Veterinary Medicine study programme offered by FMV. Both the national and European evaluations proved to be important incentives to foster improvements in governance, structuring and performance of FMV at various levels. The trend of FMV's evolution has been positively influenced by the diagnostic workouts and recommendations of each of the above-mentioned evaluation teams.

Main features of the Establishment

- The **oldest Veterinary School in Portugal**, educating and training veterinarians since 1830.
- **International recognition**, as it was the only study programme of Veterinary Medicine approved by the EAEVE in Portugal until 2016.
- **Teaching staff of high scientific and pedagogic quality**, mostly with a PhD degree (80%), in full-time (77.5%) or exclusive (71.3%) endeavour to FMV.
- **High-quality students** recruited in a national-based highly competitive process.
- **Well-equipped facilities**, including a Veterinary Teaching Hospital (VTH) and Diagnostic Services.
- **Curriculum** revised and updated in accordance with national and international recommendations.
- Host of the **Centre for Interdisciplinary Research in Animal Health (CIISA)**, the most prestigious research centre in Veterinary Sciences in Portugal, with the highest rate (Excellent) given by Fundação para a Ciência e a Tecnologia (FCT), the national public agency that supports and funds research, technology and innovation.
- Included in **ULisboa**, the largest and most prestigious university of Portugal and one of the major institutions of Higher Education in Europe.

Main developments since the last Visitation

Since the last EAEVE visitation (2017), several improvements were introduced:

1. The public **budget** allocated to FMV has gradually increased since 2016, as a result of the assumption by the Rectory of ULisboa, and more recently from the Ministry of Higher Education, Science and Technology, that veterinary medicine students should be financed at the highest level of public funding (U1). This has allowed a greater investment in infrastructures and the hiring of human resources, the latter however limited by a government rule (hiring must not exceed 3% of the previous year's wage bill).
2. As a result of the budget increase, with own savings and financial assistance from the Rectory, it was possible to begin the rehabilitation of FMV facilities in 2021, which corresponded to one of the minor deficiencies highlighted in the previous ESEVT 2017 evaluation. The first phase is now completed with the rehabilitation of buildings A, B, C, D, E and F. Buildings G and H will follow shortly.
3. Reorganization and investments in VTH continued to be a priority, namely:
 - a) **Reorganizing the VTH into 6 units:** 3 Hospitals (Companion Animals, Equine and Food-Producing Animals), Diagnostic Centre, Pharmaceutical Services, and Biological Isolation and Containment Unit (BICU),
 - b) **Restructuring the Equine hospital, with new areas, including the surgery room and equipment,**
 - c) **Remodelling** and increasing the number of consultation offices for companion animals,

- d) **Hiring more veterinarians and nurses:** in 2023, the VTH staff included 56 veterinarians (two with a European Specialisation), 24 nurses and 10 auxiliaries, whereas in 2017 it included 25 veterinarians (one with a European Specialisation), 12 nurses and 4 auxiliaries,
 - e) Hiring of a new **Practice Manager**,
 - f) **Purchasing of new surgical and diagnosis equipment** (listed in Chapter 4), of which it is worth highlighting a second Computed Tomography (CT scan) exclusively for horses, a multispecies Magnetic Resonance Imaging (MRI), ultrasonography, endoscopy, anaesthesia and minimally invasive surgery equipment,
 - g) Implementation of a **new electronic patient record system and data management (QVET)** for better clinical and financial management and student access to patient information.
- 4. The **Veterinary curriculum has been under revision**, in accordance with the recommendations of national and international evaluation panels and the suggestions from our teachers, students, alumni and from the FMV Advisory Council members, which includes the sector stakeholders. This curricular review is approaching its final stage and the new plan is included below (Chapter 3) for ECOVE Team analysis and suggestions.
 - 5. Reinforcement on the **Clinical Skills Training Centre (CSTC)** with more full-sized, realistic and advanced canine, feline and equine dummies and other training resources.
 - 6. The **logbook** introduced in 2014-15 to boost student's proactivity and autonomy, as well as to increase the quality assessment of the acquisition of Day One Competences for veterinary graduates, moved to a digital version (app), much more appealing, functional and controllable.
 - 7. A Biosafety Level 3 (BSL-3) laboratory was built.
 - 8. Renewal of **audio-visual equipment** in auditoriums and classrooms.

Major problems encountered by the Establishment

- 1. Budget: **the public financial funding** is still **insufficient** to support the desirable developments in teaching and research, compared to the budgets of most European Schools.
- 2. Facilities: **poor quality of building construction** involves frequent and costly maintenance and limited areas for livestock species.
- 3. Faculty members: **absence of performance incentives** for teachers and other employees, weak age-stratification, government imposed **limitations for hiring** human resources delaying the desirable reinforcement.
- 4. **Excessive bureaucracy** and **legislative instability** that hinder better planning.

Version and date of the ESEVT SOP which is valid for the Visitation

Standard Operating Procedure 2023, approved at the Leipzig General Assembly, 8 June 2023.







FACULDADE DE MEDICINA VETERINÁRIA

1

*Objectives, Organization
● and Quality Assurance Policy*





1. OBJECTIVES, ORGANISATION AND QUALITY ASSURANCE POLICY

1.1. Mission, Vision and Objectives

According to its Statutes, FMV's **Mission** is to create, transmit and disseminate science, technology and culture in Veterinary Sciences, through the development of high-standard teaching, research and extension activities, for the benefit of the Society.

Likewise, FMV's institutional **Vision** is to be among the best Veterinary Schools in Europe, recognized for its high standards of teaching and research quality and innovation, offering conditions that attract the best protagonists and providing a stimulating environment, within a culture of intellectual and scientific freedom, cooperation, and respect for the values of ethics, social responsibility and recognition of merit.

In a qualified manner and meeting the demands of the sustained development of societies, FMV pursues the following main **objectives**:

- a) Provide university-level teaching granting Bachelor, Master and Doctor academic degrees,
- b) Develop scientific research and technological development,
- c) Promote knowledge dissemination and its economic and social valorization, and provide qualified services to the community,
- d) Promote the scientific, technical and cultural capacitation of the staff, encouraging continuous updating and improvement, and promoting appropriate processes for evaluating their performance, following the law,
- e) Provide certified specialization and updating education in the perspective of lifelong learning and professional training,
- f) Cooperate with similar institutions and other national and foreign bodies, public or private, and participate in international scientific, technical and cultural exchange programs,
- g) Adopt the principle of internationalization, through the mobility of students, teachers, researchers and technicians, and the participation in university training and research networks,
- h) Recognize and support the role of student and non-teaching workers associations, namely the FMV Students' Association and the *Alumni* Association, providing spaces and conditions for the autonomous exercise of their activities.

FMV's main study programme is the integrated master's in Veterinary Medicine (IMVM), in which around **86% of our students** are enrolled. Veterinary training is therefore the main concern of FMV governing bodies, which is guided by the rules and recommendations from the Portuguese Agency for Assessment and Accreditation of Higher Education (A3ES) and the international recommendations from ECOVE/EAEVE. FMV has approved Day One Competences of its graduates since 2000, which are reviewed regularly and integrate all those defined by ESEVT. This **ensures that its curriculum enables all graduates to perform as a veterinarian capable of entering all commonly recognized branches of the veterinary profession.**

1.2. Factual information

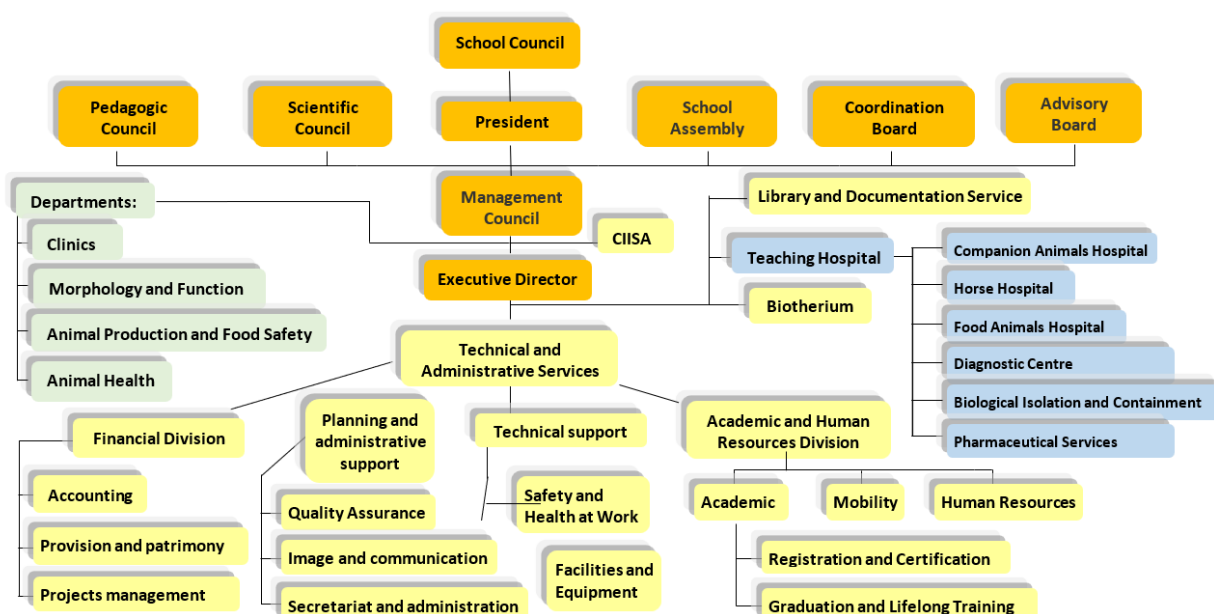
1.2.1. Details of FMV

- **Official name** - Faculdade de Medicina Veterinária (Universidade de Lisboa)
- **Address** - Av. da Universidade Técnica, Alto da Ajuda, 1300-477 Lisboa, Portugal
- **Phone number:** + 351 21 365 2800, Fax number + 351 21 365 2810
- **Email** – fmv@fmv.ulisboa.pt



- **Website address** - www.fmv.ulisboa.pt
- **Establishment's Head** – Professor Rui Caldeira (Full Professor, DVM, PhD)
- **Official authority overseeing the Establishment** – Rector of the University of Lisboa – Professor Luís Ferreira (Full Professor, DVM, PhD)
- **Person responsible for the veterinary curriculum** – Professor Luís Lopes da Costa (Full Professor, DVM, PhD)
- **Person responsible for the professional, ethical, and academic affairs of the Veterinary Teaching Hospital** – Professor António José de Almeida Ferreira (Full Professor, DVM, PhD)

1.2.2. Organisational chart (diagram) of FMV



1.2.3. Decision-making process

All universities in Portugal are under the auspices of the Ministry of Education, Science and Innovation (Ministério da Educação, Ciência e Inovação, <https://www.portugal.gov.pt/pt/gc24/area-de-governo/educacao-ciencia-e-inovacao>) and the Portuguese Agency for Assessment and Accreditation of Higher Education (A3ES). FMV is one of the 18 Schools (Faculties and Institutes) of ULisboa (<https://www.ulisboa.pt/escolas>), and both ULisboa and FMV have **scientific, cultural, pedagogic, administrative, financial and patrimonial autonomy**. Therefore, the overall structure of decision-making procedures has three levels: Ministry/A3ES, University, and Faculty.

At Ministry / A3ES level: The Ministry, together with Parliament, produces the legislation applicable to Science and Higher Education, determines the *numerus clausus* and decides and distributes the annual budget for each Higher Education Institution (Universities and Polytechnics). A3ES evaluates and accredits the study cycles, following legislation, which is then proposed to the ministry for public financing.

At University level: The **Rector** is the university's highest representative of the Government and Society. It assigns the annual budget to each School, authorizes the opening of calls for the hiring of all staff, signs the academic degree certificates, approves proposals for new courses or changes to those already in operation, which are then submitted to A3ES, and approves all University's Regulations. The Rectory Services are responsible for the implementation and management of all systems common to the entire University, from computer programs for academic and financial



FMV-ULisboa SER 2024 – Objectives, Organisation and Quality Assurance Policy

management to Quality Assurance. The **General Council** elects the Rector and supervises his activity, approves the University's Activity Plans and Reports and sets the tuition fees.

At Faculty Level: FMV governing bodies are described in the following section. In summary, in the decision-making process, the President makes the final decisions after consulting the School Council, Scientific Council and Pedagogical Council on strategic matters for the institution. The proposals of the Scientific Council consider the hiring of human resources, the appointment of juries of academic calls and the creation or alteration of study cycles. The proposals of the Pedagogical Council also consider the creation or alteration of study cycles but mainly relate to pedagogical rules, school calendars and the Knowledge and Competency Assessment Regulation.

1.2.4. List of departments/units/clinics and councils/boards/committees with a very brief description of their composition/function/responsibilities

FMV governing bodies:

- **School Council (ScC):** The ScC is the body of strategic decisions, supervision of compliance with Statutes, and other applicable legal regulations, and the fulfilment of the FMV mission. It elects the President and supervises his activity, approves the Faculty Strategic Plan and the annual Activity Plans and Reports, and sets the tuition fees to be approved by the General Council of ULisboa. It includes 15 members, as follows: 9 representatives of teachers and researchers (PhDs and full-time basis), 1 representative of non-teacher staff, 2 representatives of students, and 3 co-opted external personalities.
- **President (Dean):** The Dean is an uninominal executive organ, of external and internal representation of FMV, elected by the ScC, amongst FMV's full professors.
- **Scientific Council (SC):** The SC is responsible for FMV's scientific policy, including the study cycles' programmes, distribution of teaching service and the teaching staff qualification. It comprises 15 elected members: 12 full-time teachers with a PhD degree and 3 representatives of the research unit, teachers and/or researchers with a PhD degree.
- **Pedagogic Council (PC):** The PC is the body responsible for FMV's pedagogic policy, considering the evaluation of guidelines, methods, actions and results of teaching activities, the proper functioning of the study programmes, and career opportunities. It comprises 5 full-time teachers with a PhD degree and 5 students that should ensure the appropriate representation of both master's and PhD students.
- **Management Council (MC):** The Management Council is chaired by the Dean and includes one of the Vice-Deans, the Executive Director and the head of the Financial Division. It is responsible for the administrative, financial and property management of FMV.
- **School Assembly:** The School Assembly is an advisory body assembled in situations considered of major importance and complexity for the life of FMV. It is composed by all teachers, researchers and other staff and student delegates. The School Assembly is chaired by the Dean.
- **Advisory Board:** The Advisory Board is the body that communicates with Society and stakeholders. It is composed of inherent members (Presidents of FMV's bodies and departments, President of the Alumni Association and President of the Students' Association) and 20 personalities of the social, economic and professional sectors related to FMV's areas of interest, appointed by the Dean upon the proposal of the ScC, after consulting the SC.
- **Departments:** Departments are operative units of vocational areas of teaching and research. There are currently 4 departments: Morphology and Function, Animal Production and Food Safety, Animal Health, and Clinics. Each department has its Department Council, which includes all teachers and researchers with a PhD degree, who elects a President and an Executive Committee every four years. Each scientific area elects one Study Coordinator.



- **Veterinary Teaching Hospital (VTH):** The Veterinary Teaching Hospital (VTH) aims to offer practical training to students in propaedeutic and clinical areas, research activities in Clinics and Animal Health, and to provide qualified and reference services to Society. It is run by a Board chaired by the Dean and includes the heads of each subunit, the SC and PC Presidents, the Presidents of the Departments of Clinics and Animal Health, and the Practice Manager.
- **Centre for Interdisciplinary Research in Animal Health (CIISA):** CIISA (<https://ciisa.fmv.ulisboa.pt/en/>) was formed in 1992, to develop and coordinate R&D activities conducted at FMV. See more information about CIISA in 10.1.

1.2.5. Description of the formal collaborations with other VEEs

FMV entails **good relationships with other Portuguese VEE**, mainly with the public ones, given their similarity of operation, cooperating in various initiatives, promoting the discussion of common aspects, and sharing innovative experiences.

In research, there are numerous collaborations, highlighting the creation in 2022 of an Associated Laboratory of Animal and Veterinary Sciences (AL4AnimalS), between the research units of FMV (CIISA) and of the Universities of Porto (CECA) and Trás-os-Montes e Alto Douro (CECAV).

In behalf of the Council of Rectors of Portuguese Universities (CRUP), the **Almeida Garrett Program** assembles the national format of the European Erasmus+ Program, with the aim of promoting student mobility between public Portuguese Universities. FMV offers annually two vacancies for this mobility programme.

1.3. Strategic Plan

1.3.1. Summary of the Establishment Strategic Plan

The **current strategic plan for the four years of 2023-26** was presented in the Dean's candidacy and later approved by the School Council (Appendix 1). The strategic plan is available to staff, students, and stakeholders on FMV's website and is implemented by the government bodies and assessed by the ScC. Its objective is to fulfil FMV's Mission and Vision, respecting and honouring the historical past, maintaining and potentially increasing the high level of international recognition and quality achieved. The priority strategic lines of action are:

1. **Consolidate and improve teaching, research, and services to the community,**
2. Promote a **stimulating and profitable teaching-learning environment,**
3. Implement the **new IMVM Study Plan,**
4. Innovate teaching, learning, and assessment **pedagogical methodologies,**
5. **Increase the offer of postgraduate training** in the lifelong programme,
6. Ensure conditions to fulfil the mission of **Research Centres** (CIISA and AL4AnimalS),
7. Optimize the **competences and services offered by the Teaching Hospital,**
8. Encourage the provision of **residencies and internships** as a form of specialized training,
9. Renew, increase, and motivate **academic, non-academic, and support staff**, encouraging quality and rewarding merit,
10. Encourage **mobility** of students, teachers, researchers, and other staff,
11. Conclude the **rehabilitation** of FMV buildings and facilities and the **modernization of its teaching, medical, and research equipment,**
12. **Develop synergies and collaborations with other ULisboa Schools,**
13. **Enhance the QA System,** in line with ULisboa,
14. **Plan the international evaluation by ESEVT in 2024.**



1.3.2. SWOT analysis

Strengths
• Experience in veterinary training, being the oldest Veterinary School in Portugal and in Portuguese-speaking countries, since 1830, • International recognition, since it was until 2016 the only Portuguese School approved by EAEVE, ranking first in Portugal and a relevant position in international terms (e.g. Shanghai place 51-75°, URAP 61°), • Faculty members of high scientific and pedagogic quality, mostly with a PhD degree (80%), working in full-time (77.5%) and exclusive (71.3%) endeavour to FMV, • High-quality students selected after a national highly competitive process, with the average number of candidates being nearly 4-fold the number of vacancies), • Well-equipped facilities, now rehabilitated, with modern and suitable areas for practical teaching and research, • Modern curriculum, according to international recommendations, including directives governing the teaching of veterinary medicine in the EU, • A VTH providing high-level clinical services, 24 hours per day, 365 days per year, a huge asset in teaching and a reference unit for many referring veterinarians and stakeholders, • Diagnostic Services, closely linked to teaching and assistance to the VTH, • A research unit (CIISA) rated Excellent by FCT and a new Associate Laboratory for Animal and Veterinary Sciences (AL4AnimalS), coordinated by CIISA and integrating two other Portuguese units, • FMV is part of ULisboa, the largest and most prestigious University in Portugal and a major European university, well classified in the most International rankings (see https://www.ulisboa.pt/en/info/rankings).
Weaknesses
• Public financial funding is still insufficient to support desirable developments in teaching and research, compared to the budgets of most European Schools, • Lack of significant performance incentives for teachers and other staff (halt in career and salary progression), weak age-stratification of faculty members (for teachers: $12\% \leq 40y$, $40y > 24\% \leq 50y$, $50y > 30\% \leq 60y$ and $60y > 34\% < 70y$), • Irregularity of funding for research and PhD scholarships affects the dynamics of research., • Facilities: Despite the rehabilitation operated between 2022 and 2024, the poor quality of construction requires frequent and costly maintenance, • Constraints from the legal framework of public institutions: a) Limited autonomy and flexibility of human resources management (e.g. difficulty in hiring the best given the low salaries in the public service and in avoiding the departure to the private sector and to other public institutions (e.g. government inter-career mobility plans), b) Huge amount of time and resources spent on bureaucratic duties.
Opportunities
• Merging of UTL with UL in 2013, resulting in ULisboa: a) Establishment of new internal collaborations in teaching and research, particularly with Schools of Agriculture, Medicine, Pharmacy, Dentistry, Biology, b) Increase in critical mass, c) Economy of scale, d) Boost in national and international networking and cooperation, e) Access to shared Rectory services, increasing administrative efficiency, f) Increased visibility of FMV, • Life and Health Sciences as dynamic research areas at a global level: a) Allocation of significant financial resources to research by the government and EU, b) Participation in international networks, enhancing financial funding and improving mobility,



c) Improvement of teaching and research through national and international competitive programs and projects, d) Decisive role of Veterinary Medicine within the "One Health" framework, e) Integration of students into research and training of qualified professionals, f) Society's perception of food safety and security issues, • Establishing protocols with the neighbour School of Agriculture (ISA): a) Create synergies for teaching and research, b) Use of specific areas of Tapada da Ajuda for practical activities, • Development of partnerships to promote teaching and research internationalization, particularly through European programs and with Portuguese-speaking countries, • Potential to attract high-quality international students.
Threats
• High cost of Veterinary Medicine training, the most expensive of all university education, • Budget remains below the desired level, despite increasing trend, • Difficulty in the increase and renewal of staff, due to budget and legal constraints, • Low reward for career excellence of teachers, researchers, and other staff, essential for their motivation, • Portugal's economic and financial situation, impairing business activity and better average income <i>per capita</i>, • Scarce investment in research and technology of the majority of Portuguese companies in the animal business sector.

1.3.3. Summary of FMV's Operating Plan with timeframe and indicators of achievement of its objectives

The QA system totalizes 173 indicators, which are revised every four years (Appendix 2d). Combining the guidelines of the 2023-2026 Strategic Plan, this set of QA indicators and the public investment programs launched in the meantime, resulted in the following Operating Plan:

Action	Timeframe	Indicators
1. Improve teaching		
Complete review and implement new IMVM Study Plan	2022-26	Implementation
Innovate teaching and assessment pedagogical methodologies	Continuous	Implementation
Reinforce of Clinical Skills Training Centre	Continuous	>5%/year
Increase use of animal dummies	Continuous	>5%/year
Acquisition of modern teaching support technologies	2024-26	Implementation
Logbook digitalization (moving from paper to app)	2022-24	Implementation
2. Stimulate research		
Assessment of research activities	Continuous	CIISA' rate
Increase number and quality of scientific publications	Continuous	>2%/year
Increase transfer of technology and knowledge	Continuous	>2%/year
Identify new research lines answering society emerging problems	Continuous	> 1/year
3. Improve university extension services		
Increase offer and quality of VTH services	Continuous	>2%/year
Develop synergies with external institutions	Continuous	>1/year



Action (cont.)	Timeframe	Indicators
4. Rehabilitate and modernize facilities		
Rehabilitation of FMV buildings and facilities	2021-26	Conclusion
Modernization of teaching, medical and research equipment	Continuous	On-going
Construction of 3 new classrooms adapted to modern ways of teaching	2026	Conclusion
Construction of a Comparative Surgery Centre	2026	Conclusion
New offices for researchers, PhD and Master students (C-Building)	2022-24	Conclusion
New areas for workers and student's socialization and welfare	2023-24	Conclusion
Renovation of canteen and cafeteria areas	2023-24	Conclusion
Renovation of student study rooms	2023-24	Conclusion
Renovation of transport vehicles for teachers and students	2024-26	Conclusion
5. Renew and increase human resources		
Renew and increase academic staff (nº ETI)	Continuous	>1%/year
Renew and increase administrative and support staff	Continuous	>1%/year
Staff assessment	Continuous	> Results
6. Increase LLL and postgraduate training activity		
Increase Life Long Learning training courses	Continuous	>1%/year
Increase postgraduate studies	Continuous	>1/year
7. Develop synergies and collaborations within ULisboa		
Increase joined study programmes in collaboration with other Schools	Continuous	>1/4 years
8. Encourage innovative and diversified partnerships		
Expand collaborations, innovative and diversified partnerships	Continuous	>1/year
9. Prepare international evaluation by ESEVT in 2024	2023-24	Accreditation
10. Consolidate outcome assessment and Quality Assurance	2023-25	On-going
11. Increase FMV's image and visibility		
12. Renovate CIISA, VTH and FMV webpages	2022-24	Conclusion
13. Modernize information dissemination and communication systems	2022-26	Continuous

1.4. Quality Assurance

1.4.1. Global policy and strategy for the outcome assessment and Quality Assurance

FMV has long addressed a culture of QA and continuous improvement of quality. For example, the PC has conducted inquiries to students about the functioning of the units of study and the pedagogic performance of teachers since 1991. **The QA system is mainly provided by the management bodies, particularly the SC and PC.** For IMVM, the main study programme of FMV, the **Scientific Committee of IMVM** fulfils closer monitoring, ensuring that objectives are met, including quality of teaching, acquisition of skills, and academic success. The IMVM Curricular Traineeship Committee oversees all procedures of the curricular traineeship.

A formal system of QA was established in 2011 by UTL through the “**Regulation of the Integrated System of QA of UTL**”, followed by the corresponding regulations on each Faculty. The “**Regulation of the Integrated System of Quality Assurance of FMV**” was approved on the 28th of September 2012, followed by the Quality Policy, the Quality Manual and the Quality Plan (Appendices 2a, 2b, and 2c), considering:

- The European Association for Quality Assurance in Higher Education (ENQA),
- The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG),
- The principles and process of Evaluation and Standard Operating Procedures of ESEVT, which regulate the evaluation of veterinary educational establishments through the ECOVE.

The merging of UTL with UL in 2013 entailed the review of regulations of both Universities, a process completed in 2015. The Regulation of the **Integrated System of Quality Assurance of the University of Lisbon (ISQA-ULisboa)** was approved on the 14th of December 2015, as well as the Quality Manual, the Quality Plan, and the Manuals of Procedures of ULisboa followed by



FMV-ULisboa SER 2024 – Objectives, Organisation and Quality Assurance Policy

the adaptation of this regulation in each faculty. The ISQA-ULisboa is based, among others, on the following principles:

- Meet the diverse, complex, and multidimensional reality of the University,
- Guarantee integration of different QA Systems of Schools in the ISQA-ULisboa, with respect for their diversity and autonomy,
- Ensure participation, collegiality, rigor, and commitment in academic life,
- Entail simplicity, coherence, stability, and predictability,
- Ensure transparency and accountability,
- Promote the development of a quality culture in the various fields of action of the University.

Since its approval, the ISQA-ULisboa received **a series of improvements**, which today ensure the maturity of the system. Up to 2021, **information systems common to the entire University** had been developed and implemented, and, since this date, ULisboa as a whole uses the same common academic management electronic system (**FenixEdu**) and financial and human resources management electronic system (**SAP**). This was an important milestone, which today allows for data collection and integrated processing of information, respecting the specificities and autonomy of Schools. In 2022-23 the **assessment of ULisboa by A3ES resulted in the approval without conditions for six years**.

The Council for the Quality Assurance (CQA) of FMV coordinates and manages the Integrated System of Quality Assurance of FMV (ISQA-FMV). This council is chaired by the Dean, including SC, PC and Clinics Department Presidents, Executive Director of FMV, three teachers appointed by the Dean and the Student's Association President. The QA strategy is in tune with FMV's strategic plan, is implemented, assessed and revised by the CQA in conjunction with management bodies, and is communicated through the internal network and FMV website.

1.4.2. Awards

FMV awards several annual academic merit prizes to students, some financed by FMV's own revenues and others by families' legacies of former students or teachers (Mendanha Junior Prize, Augusto Abreu Lopes Prize) or sponsored by a banking institution (Caixa Geral de Depósitos).

1.4.3. Policy for academic integrity

The ethical dimension is clearly inscribed in the mission and values of ULisboa. The General Council of ULisboa approved in 2015 three documents framing the academic integrity and conduct and good operating practices (<https://www.fmv.ulisboa.pt/uploads/2023/05/6455002550146.pdf>):

The ULisboa **Disciplinary Students Rules and Regulations** (Appendix 3) sets the students' standards of ethics, defining disciplinary infractions and their sanctions.

The **Code of Conduct and Good Practice** (Appendix 3) comprises the Disciplinary Regulation, previewed in Article 27 of ULisboa Statutes, and the disciplinary power of the Rector and the Presidents or Directors of the Schools.

The ULisboa **Charter of Rights and Guarantees** (Appendix 3) states the rights, freedoms, and guarantees enshrined in the Portuguese Constitution and the Law, within the limits of regulatory autonomy granted to the University.

The ULisboa **Student Ombudsman** (<https://www.ulisboa.pt/en/info/student-ombudsman-0>), appointed by the General Council, is an independent body to defend and promote the students' rights and interests within the University. The Ombudsman must consider students' complaints and to issue adequate recommendations to the competent bodies of the University.



1.5. Interaction with stakeholders and the wider society

FMV's website (<https://www.fmv.ulisboa.pt/pt>) displays up-to-date information on study programmes, research, and external services (e.g. VTH). FMV's educational programme is also advertised in trade fairs for Education, Training, and Employability promoted by ULisboa or others (e.g. Futurália, Qualifica). The General Directorate of Higher Education through the National Higher Education Access Contest also publicizes information about IMVM in the last 3 years (<https://www.dges.gov.pt/guias/detcursopi.asp?codc=9847&code=1509>), including the number of candidates in each application phase, classification of last enrolled applicant, average classification of enrolled applicants, gender ratio, geographical origin, and whether the application was the candidate's first choice.

Additionally, to FMV's website, IT platforms make information available to students and teachers:

- a) FénixEdu platform, transversal within ULisboa, where students apply, register, request declarations, certificates, and diplomas, and have access to official information about study units and the profile of the student population,
- b) MOODLE platform, a free open-source learning system, where daily management of US is carried out, and bibliography, timetables, group work, messages, the offer of internships, jobs, and opportunities to participate in research projects are shared with students.

Final reports and/or self-evaluation reports of national and international evaluations are available on FMV's website (<https://www.fmv.ulisboa.pt/pt/institucional/avaliacoes-acreditacoes>) and also on the websites of A3ES (<https://www.a3es.pt/en/accreditation-results/integrated-master-veterinary-medicine-1>) and EAEVE.

1.6. Monitoring and reviews of activities

FMV's Integrated System of Quality Assurance (ISQA) is coordinated and managed by the Council for Quality Assurance (CQA) in close connection with the management bodies. The annual **Quality Report** is approved by the CQA and the **FMV annual Activity Report**, coordinated by the President and Executive Director, is approved by the SsC. Both these documents are communicated to staff, students, and stakeholders through its publication on the web page.

The **QA system** is organized into several **processes**: Education, Research, Services (including the VTH), Internationalization, Human Resources, Financial Resources, Maintenance and expansion of facilities and equipment, Operation of administrative services, Continuous improvement of the Quality Assurance System, and Strategic management of the Quality Assurance System, totaling 173 indicators (Appendix 2d). These indicators and their respective goals characterize the school's performance and contribute to strategic decisions.

The PC and the Scientific Committee of IMVM analyse the information collected by the Academic Office on students' academic success and deliver inquiries about the functioning of study programmes, units of study (US), and the pedagogic performance of teachers, which are key documents for quality control. A new quality module of FenixEdu, implemented in 2023, allows the responsible for each US, the SC, the PC, and the Scientific Committee of IMVM to access online information for the monitoring of academic success, such as the number of registrants, approvals and failures, and classifications by exam period.

Every year, the President and the Executive Director prepare the **Annual Activity Report of the previous year**, and the **Annual Plan of Activities for the following year**, based on the Strategic Plan. The fulfilment of the goals defined in the QA system is verified and reported in the Annual Activity Report and the Quality Report. If these goals are not achieved, corrective measures are identified, closing the loop of QA Plan-Do-Check-Adjust cycle. In 2014 all ESEVT indicators were added or merged with internal indicators in order to maintain their compliance. Since then,



whenever ESVET indicators are reviewed, internal indicators follow this review. A table with the results of indicators since 2014 is in Appendix 2d.

Staff and students are involved in QA processes. Teachers are present in the Presidency, SsC, SC, and PD. Researchers are present in the SC. Non-teaching staff are present in the SsC and students are present in the ScC and the PC. Easy and regular contact with the **Students' Association**, the official representative of students, is a privileged route for the participation and consultation of students in all matters.

IMVM was also submitted to several external evaluations and was approved in all of them.

The preparation of self-evaluation reports was a process of deep analysis, reflection, and procedures improvement, and the analysis of results and recommendations provided important guidelines for continuous improvement. ESEVT evaluations motivated significant changes in important aspects, such as student/teacher ratio and the reinforcement of the hands-on training. EAEVE recommendations provided very important guidelines and stimuli for the improvement of the study programme. Documents concerning national and European evaluations are published on FMV's website (<https://www.fmv.ulisboa.pt/pt/institucional/avaliacoes-acreditacoes>).

Research is regularly assessed in competitive applications for project funding or through formal systems of evaluation of research units. **CIISA was evaluated 4 times** (1999, 2008, 2015 and 2019) by FCT, being approved with the rate of Very Good until 2015, and reaching the maximum classification of **Excellent** in 2019. CIISA's coordination monitors the activity funded by CIISA, and the results of the above assessments and monitoring are also analysed by FMV governing bodies, namely the Presidency and SC. As a result, the amount and quality of research activity have increased, thus supporting higher quality of teaching and community services.

The VTH is evaluated under several perspectives: caseload and type (reference, first opinion, and specialties), animal species (companion animals, exotics, horses, ruminants, pigs and poultry), number of services provided, and students, customers, and technicians satisfaction surveys.

The regular systems for evaluating the performance of all workers, teachers, researchers, and other staff are also used in ISQA and are described in detail below.

1.7. ESEVT evaluations and its connection with continuous quality assurance process

FMV is a founder member of EAEVE and has been visited, evaluated and included in the EAEVE list of approved Faculties since 1989 (see Previous ESEVT Visitations in Introduction section). The last visit took place in **October 2017**. The Full Visitation Team did not find any Major Deficiencies, but only three Minor Deficiencies, and FMV-ULisboa received the status of ACCREDITATION.

At the time of the **Interim Report, on April 2021**, from the **three minor deficiencies** found in 2017, two had already been overcome (inadequate funding and voluntary pedagogical training of teachers) and the third (maintaining and upgrading buildings and equipment) was in progress. **Now, in 2024, the situation for each of these minor deficiencies is as follows:**

The State Budget for FMV has been increasing since 2016 at a rate near 5.2% per year, partially offset in the last 2 years by inflation. Compared with 2016 (5,385,690€), FMV's 2024 State Budget increased by 50.24 % (to 8,091,676€). However, after 2020 the government reduced student tuition fees, having proportionally compensated the universities through the public budget. Taking this into consideration, the increase was in reality **around 40%**. **Although still far away from the funding of equivalent European Schools**, this increase allows to maintain the recruitment and retention of key academic teaching staff, to increase the number of veterinarians and nurses at the VTH, to upgrade the equipment and to carry out the main rehabilitation works on the buildings.

As stated in our 2017 SER, FMV and ULisboa **State Budgets do not provide funds for the maintenance or rehabilitation of buildings and equipment**. The Rectory was well aware of the



accelerated deterioration of FMV facilities, mainly due to the very low quality of construction, water infiltrations, and lack of general maintenance.

As a result of the budget increase, own savings, and financial assistance from the Rector, it was possible to begin the rehabilitation of FMV facilities in 2021. **The rehabilitation of buildings A, B, C, D, E, and F is now completed. The remaining buildings G and H will follow soon**, but they do not present any serious anomalies.

The budget increase has allowed the **renewal of equipment**, namely in VTH, **air conditioning and classroom audiovisuals**. In 2020, FMV won an application for partial financing (40%) of the VTH Imaging Center, which allowed it to acquire a **MRI that will serve pets and horses, and a new CT scan only for large animals**, in addition to **minimally invasive surgery equipment**.

The **improvement of CIISA's grade from Very Good to Excellent** allowed the increase in research funding, and an additional 600,000€ already used to acquire a flow cytometer, a liquid chromatography-mass spectrometry (LC-MS), and a confocal microscope.

The **pedagogical training of teachers became mandatory on 6 June 2019** (PC Deliberation of 17/05/2019 and PC President's Order of 6/06/2019). For full-time teachers and researchers, hired by FMV for less than 6 years, a minimum of 12 hours of pedagogical training is required for each three-year performance evaluation. For those hired for more than 6 years on a full-time basis and for invited teachers, a minimum of 6 hours of pedagogical training is required for each three-year performance evaluation. **Also, veterinarians and nurses of the VTH must attend specific pedagogical training courses indicated by the PC** with a minimum duration of 6 hours per three-year period. An increase in these training periods is under study and will be implemented later. This pedagogical training has consisted mostly of actions organized by the Lifelong Training Center of the University of Lisbon, on teaching and assessment platforms (e.g. MOODLE, Zoom, Mentimeter), teaching and assessment techniques, active learning, feedback in short videos, etc.

In 2022, the **Rector started a set of programs aimed at enhancing the pedagogical skills of its teachers**, namely:

1. **Program for Early Career Teachers** - The Planning, Involving, Transmitting and Evaluating pillars of this program are designed to support the start of a teaching career with strategies and best practices that have been validated by research in university pedagogy. The goal is to make it easier for new teachers to adopt active pedagogical approaches.
2. **Share Pedagogical Days** - The Pedagogical Days are moments of sharing and reflection among the entire academic community at ULisboa. Each year a new theme is selected and the main objective of conferences is to promote discussion and sharing of experiences on topics related to pedagogy.
3. **Pedagogical innovation projects** - A competition is launched annually to finance pedagogical innovation projects.
4. **Pedagogical Innovation Award** - This award aims to distinguish innovative pedagogical projects that demonstrate a consistent, reflected, and well-founded pedagogical practice, and that promote the active involvement of students, the use of innovative resources, and the general improvement of teaching and learning processes.
5. **Pedagogical consultancy** - It is in a real context that doubts, failure and the need to adapt and innovate arise, which highlights the need for individualized support.
6. **Observe and Learn** - The project consists on the observation and comment of classes between teachers from different scientific areas of the ULisboa.
7. **Three Minute Thesis Competition**, to demonstrate the science communication skills of PhD students, whom in just 3 minutes, communicate complex ideas, simply and creatively, to diverse audiences.

1.8. Comments on Area 1

The scenario of Portuguese Veterinary Education has substantially changed in the last decades. From the situation of being the only veterinary school until 1986, FMV witnessed the opening of other seven veterinary programmes, 3 in public Universities: Trás-os-Montes e Alto Douro (UTAD), Porto (ICBAS-UP) and Évora (UE) and 4 in private Universities, first in Coimbra (Escola Universitária Vasco da Gama) and then in Lisboa (Universidade Lusófona and Instituto Universitário Egas Moniz) and Porto (Instituto Universitário de Ciências da Saúde), which naturally are competitors to candidates and external teaching facilities (livestock farms, slaughterhouses, fishing ports, etc). However, **this fact did not change the potential attraction of FMV towards students seeking Veterinary Education**, since 100% of FMV's *numerus clausus* have been filled over the years with highly qualified students, with the average number of candidates being nearly 3 to 4-fold the number of vacancies.

The **practice of the veterinary profession** has also evolved drastically, with a **rapid increase in the number of companion animals, specialization**, the advent of **new technologies**, and the ability of owners to **afford expensive treatments** for their animals.

The **profile of students and professionals has also significantly changed**. Generation Z was the first generation to grow up with **access to the Internet and portable digital technology**, with all the positive and negative effects that this experience caused. Compared to previous generations, Generation Z students tend to live more relaxed than their predecessors, are more concerned with academic performance and job prospects, and are better at delaying gratification than their counterparts from the 1960s. Simultaneously, there was an **exponential growth in the number of women** in the profession, a **general increase in veterinarians for companion animals, horses, and exotics**, and a **decrease in veterinarians for livestock species** and, especially, for **inspection services at slaughterhouses**. New times, new challenges, new answers.

1.9. Suggestions for improvement in Area 1

The image of FMV is one aspect to be improved, as a critical factor for its prestige, and significantly contributing to the attraction of the best "customers" (stakeholders, students) and employees (teachers, researchers, support staff), and, therefore, to the ability to fulfill its mission. This image promotion is mainly performed by highlighting its name/brand, mission, vision, products, and services. To overcome this need, an Image and Communication Office was created in 2020, promoting the image and adapting communication to modern forms and following the target audiences. The **web pages** of FMV, VTH, and CIISA, main windows to the public, were recently renewed, becoming more aesthetically attractive, simple, and user-friendly. Being **present at all significant forums and events related to FMV's areas of expertise** is a third factor that enhances its prestige. This presence is crucial to raising public awareness of FMV and its involvement in significant decision-making processes. All these aspects will significantly contribute to the promotion of FMV's image and development in line with external needs and expectations.

As explained above, in 2022-23 and within the ISQA-ULisboa, the Quality Manual, Quality Plan, and Manuals of Procedures of ULisboa were reviewed within the scope of the institutional assessment of ULisboa by A3ES, which resulted in the approval without conditions for six years. Meanwhile, FMV has continued to conduct its routine quality control procedures and developed its own QA system in a way that meets general requirements and integrates well with ULisboa's ISQA system. **These systems are essential to the quality control of all procedures and processes and must continue to grow harmoniously.**



2. Finances



2. FINANCES

2.1. Global financial process of FMV

According to ULisboa and FMV's Statutes, **FMV is a public collective entity with legal personality under public law, with statutory, scientific, cultural, pedagogic, administrative, financial, and patrimonial autonomy. FMV is responsible for all financial management decisions**, revenue collection, and payment of expenses. **FMV's financial income has two main sources, one public** derived from the State Budget (main source), and **one private** derived from its own revenues.

The government allocates annually the ULisboa budget based on a complex formula that considers several factors, the most important of which are:

- Number of students,
- Student financing rate level dependent on teaching specificity and education costs, where Veterinary Medicine, as well as Medicine, Dentistry, and Performing Arts, are classified on the top grade (officially just since 2024, but inside ULisboa since 2016),
- Training and differentiation of teaching staff and ratios Students/Teachers (FTE) and Support staff/Teachers (FTE).

Once the State budget allocation for ULisboa is known, **the Rector distributes it among the 18 Schools of ULisboa**, also according to that formula.

FMV's own revenues are mainly composed by tuition fees and other fees paid by the students, research grants and projects' overheads and provision of services to the community. **Public revenues** from the State Budget are mostly spent to cover staff salaries. **Private revenues** are used to cover all expenses other than the payment of salaries. Private revenues obtained from services to the community provided by the VTH are managed through a private non-profit association, the **Association for the Development of Veterinary Sciences (ACIVET)**, whose management board is chaired by the Dean of FMV and whose associates are mainly FMV teachers. Since 2017, ACIVET and FMV have shown consolidated accounts. Therefore, in the tables bellow, showing annual revenues and expenditures, the amounts are also consolidated.

Table 2.1.1. Annual expenditures during the last 3 years (€) (FMV+ACIVET)

Area of expenditure	2023	2022	2021	Mean
Personnel	10,088,767	8,780,624	8,758,973	9,209,455
Operating costs*	4,761,457	3,193,210	2,518,599	3,491,089
Maintenance costs	293,689	289,510	269,157	284,119
Equipment	1,985,013	1,421,185	575,310	1,327,169
Other costs**	2,000,000	0	0	666,667
Total expenditure	19,128,926	13,684,530	12,122,040	14,978,498

*All utilities (e.g. water, electricity, gas, fuel) are paid by FMV and are therefore included in this item

Table 2.1.2. Annual revenues during the last 3 years (€) (FMV+ACIVET)

Revenues source	2023	2022	2021	Mean
Public authorities	7,872,477	7,504,809	7,612,604	7,663,297
Tuition fee (standard students)	717,128	694,656	668,249	693,344
Tuition fee (full fee students)	29,823	73,217	64,005	55,682
Clinical services *	3,321,947	2,697,199	2,369,463	2,796,203
Diagnostic services*	998,806	894,557	640,070	844,478
Other services	718,174	620,315	353,207	563,899
Research grants	2,367,151	2,268,413	1,949,054	2,194,873
Continuing Education	118,375	84,567	34,900	79,281
Donations	0	0	0	0
Other sources**	6,522,083	5,284,277	3,719,408	5,175,256
Total revenues	22,665,964	20,122,010	17,410,959	20,066,311

* Managed through Protocol with ACIVET.

**Credit Balance, Recovery and Resilience Plan, Adjustments and Financial Support ULisboa

Table 2.1.3. Annual balance between expenditures and revenues (in Euros) (FMV+ACIVET)

Year	TOTAL EXPENDITURES	TOTAL REVENUES	Balance
2023	19,128,926	22,665,964	3,537,038
2022	13,684,530	20,122,010	6,437,480
2021	12,122,040	17,410,959	5,288,920

2.1.2. Percentage (%) of margin paid as overhead to the official authority overseeing FMV on revenues from services and research grants

Not applicable.

2.1.3. Annual tuition fee for national and international students

Tuition fee for national students is established by the government annually. In the last years the tuition fee was **697€**, which represents about 5% of the student's actual yearly cost. For international veterinary students, ULisboa General Board has approved a tuition fee of **12,500€** under FMV' proposal. FMV has 6 vacancies for international students, which are generally occupied by Brazilian students as the programme is taught in Portuguese.

2.2. Clinical and field services instructional integrity

According to FMV' Statutes, **the primary goal of the VTH is to provide students with hands-on, real-time training**, as well as enabling clinical research. To achieve these goals, VTH offers quality services to society, both first opinion and reference. FMV has total autonomy in VTH management and does not receive any public or private funding to meet its costs. Considering that:

- Public management rules are very rigid and bureaucratic, compromising flexible and rapid management, especially of human resources and the acquisition of consumable material,
- Portuguese law allows public institutions to create private associations to manage structures with more differentiated characteristics.

FMV decided in 2011 to assign the management of its VTH to a private, non-profit association, the **Association for the Development of Veterinary Sciences (ACIVET)**, to guarantee its better functioning and financial management, always with teaching and research as its central objectives. Therefore, an institutional protocol was celebrated with ACIVET that came into effect in 2011, making it possible to:

- Hire clinical staff and personnel** who are committed, competent, and differentiable, especially important when working 24 hours a day, 365 days a year,



- b) Keep the ability to **purchase supplies and equipment** that are necessary to maintain the quality of the institution's teaching, research, and services, getting the most out of negotiating with suppliers,
- c) **Increase service revenue.**

This private management considers the goals and the specific characteristics of the VTH. Therefore, although its financial sustainability is pursued, through a **pricing policy similar to commercial veterinary hospitals in the Lisbon area**, VTH also counts on financial support from FMV, **covering the higher costs of teaching and the reduction in revenue**, given the longer duration of consultations and clinical procedures and the greater expenditure on materials. Apart from the assistance provided by its teachers, FMV also ensures all the facilities, provision of electricity, water, and gas, as well as the purchase of most expensive equipment and IT support.

The **Food-Producing Animals Hospital** has a different operating model from the Hospitals of Companion Animals and Equine, as it operates almost exclusively on an ambulatory basis, guaranteeing the training of students in real-life farm conditions and contact with the most diverse realities, shaped by different production systems and livestock species. In this Hospital there is virtually no revenue and very limited expenses arising from the treatment of farm animals, since the majority of consumables are supplied by the farms.

The **VTH is run by a Board** chaired by the Dean, including also the heads of each subunit, the SC and PC Presidents, the Presidents of the Departments of Clinics and Animal Health, and the Practice Manager.

2.3. Resources allocation

2.3.1. Ongoing and planned major investments for developing, improving and/or refurbishing facilities and equipment

1. As mentioned above, with Rectory support and savings achieved by annual budget increases, in 2022 FMV finally met the financial conditions to **begin the rehabilitation of its buildings**, and the first phase which includes its six main buildings, was completed in June 2024 (1,723,423€). Still, in 2024, tenders were launched for the most urgent aspects of the remaining buildings, particularly concerning metalwork (gates) and isolation.
2. FMV applied for financing within the scope of the Portuguese Recovery and Resilience Plan (PRRP), on two calls that will be run until June 2026:
 - a) **Energy Efficiency** in Central Public Administration buildings for the installation of solar panels, heating and cooling equipment, and roof isolation, which was already approved (740,548.41€) allowing an improvement in energy efficiency and a production of around 40% of the energy consumed,
 - b) More Digital Impulse - Reform and Modernization of Agricultural Sciences - Technological and digital modernization of agricultural sciences for the **modernization of teaching conditions and methodologies**, including new active learning rooms, audio-visual equipment, optical instruments, animal dummies and simulators (important for clinical training and fulfilling the principle of “never the first time in live animals”), and a unit for the recovery of organic waste produced by our resident animals and those from the VTH. This financing has already been approved (1.161.872,00 €).
3. **Building of new educational spaces**, including the **Museum of Veterinary Medicine, the reconstruction of the library's old facilities and a recreational space** that enhances the interaction between teachers, students, researchers, and employees, as well as the promotion of cultural activities, are still waiting for financial support.

2.3.2. Prospected expenditures and revenues for the next 3 academic years

As mentioned above, FMV's public budget has grown nearly 40% since 2016, having stabilized in 2022 and updated partially according to inflation in 2023 and 2024. Although still far away from the funding of equivalent Schools in Europe, the actual level of public funding allows to maintain and improve our teaching, research and services quality, renew and increase our teaching and non-teaching staff, maintain our facilities and update equipment.

The prospects for the coming years are therefore moderately optimistic. The main sources of funding for FMV's activities are expected to **increase at least at the level of inflation over the next few years**. Thus, the **State Budget is expected to increase by 2% a year, and revenues from services are expected to continue to grow at a rate of 2.5%**.

The eventual improvement of the socio-economic conditions of the country allows us to expect more funds from the government in competitive areas such as research projects and national and international incentive programs. Thus, as shown in the table below, we expect an increase in revenues of around 2.0% per year and expenditures, with the reinforcement of human resources and the final rehabilitation of facilities, around 7% per year.

Academic year	TOTAL EXPENDITURES	TOTAL REVENUES	Balance *
2023-24	20,000,000	23,000,000	3,000,000
2024-25	21,400,000	23,460,000	2,060,000
2025-26	22,898,000	23,929,200	1,031,200

* Total revenues minus total expenditures

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

The financial process has two paths depending on the public or private origin of resources. With regard to **State Budget**, the annual value assigned to ULisboa is communicated by the ministry to the rectorate. Then the Rector promotes a meeting with the University Coordinator Council, composed by the Rectorate team and the Deans of the 18 Schools of the university, where the amounts to be attributed to each one, are debated and agreed upon, considering the past budgets and the official public formula. Usually, these meetings take place in August, referring to the budget for the following year. FMV's Management Board prepares the budget proposal, where the expected values from **FMV's revenues** are added, and this proposal is sent to the Government financial services (General Directorate of the Budget-DGO) for evaluation. Once the annual budget is revised and approved, distribution by the various budget lines is proposed by the Management Council and discussed and approved by the ScC, the body responsible for the approval of all strategic decisions, where teachers, technical and administrative workers, students, and stakeholders are represented. This budget is described in the **Activity Plan** for that year, which is approved by the ScC and **published on FMV's website**. The overall financial process is audited on a regular basis (annually or whenever superiorly decided) by the statutory auditor and several public entities. In the following year, the previous year's budget execution is described in the **FMV Activity Report**, which is discussed and approved by the ScC and published on FMV's website.

Revenues and expenditures from the VTH are accounted for and managed by the Directive Board of ACIVET, chaired by the Dean. ACIVET discusses and approves its annual report at a general assembly of associates. In this annual meeting, the President of the Directive Board presents the previous year's activities, the prospective for the following year and a financial analysis. The VTH Board, also chaired by the Dean, and including the heads of each unit, the SC and PC Presidents, the Presidents of the Departments of Clinics and Animal Health and the Practice Manager, discusses and approves the results of the previous year.

2.4. Comments on Area 2

Veterinary medicine education is by far the most expensive graduation worldwide. Veterinary medicine became increasingly sophisticated over the years, thus requiring very expensive equipment and plenty of resources. However, **this reality is seldom recognized by governments, university rectorates, and other fields of education.**

Bearing in mind this recognition, **the previous Dean made a great effort over the years, to explain to other ULisboa Schools the need for increasing funding for veterinary education.** After many years of pledging to get veterinary education recognized at the level of Medicine and Dentistry (level U1), FMV finally achieved this recognition from the University in 2015. Raising the student level to U1 should have allowed an overall increase of around 24% of the current budget if there were no increase limit. However, there was a growth limitation of 4% per year, imposed by the university to avoid major unbalances, since the increase in the budget of one School implies an equivalent decrease in the budgets of others. Therefore, the **public budget** allocated to FMV has gradually increased since 2016, representing almost 40% more in 2024 than in 2016. Finally, in 2024, **the government approved the classification of Veterinary Medicine teaching at the highest level of public funding**, guaranteeing the stability of this process. The actual budget allows for a greater investment in facilities, equipment, and recruitment of staff, the latter however limited by the government rule that the expense related to new hiring cannot exceed 3% of the total money spent on wages the year before.

At VTH, private management made it possible to gradually increase the quantity and quality of staff, ensuring better student training. On the other hand, there was a significant increase in the salaries of non-teaching workers, which improved the recruitment capacity and job stability of these staff. Not being overly optimistic, **it is anticipated that FMV's finances will continue to stabilize and grow**, guaranteeing continued **progress in education, research and services provided to the community.**

2.5. Suggestions for improvement in Area 2

Although funding improvement depends more upon third parties than on the institution itself, **there are opportunities to improve the financial return of FMV's activities**, such as:

- **expand services provided to the community**,
- **intensify efforts to attract sponsors**, in particular by increasing the interaction of FMV with private international veterinary companies, meetings with potential investors were halted by the COVID-19 crisis, and are about to be resumed soon,
- **improve facilities' profitability**, namely attracting more international entities with dynamics in continuous education training, to promote those actions at FMV. As an example, several courses promoted by ESAVS already took place on our premises,
- **improve and spread the image/brand of the institution.**



Units of study	Year	Semester	ECTS	Units of study	Year	Semester	ECTS
Deontology and Bioethics	1	1	2	Hygiene and Food Safety	3	6	4.5
Histology I	1	1	4.5	Medical Propædeutics II	3	6	4.5
Biochemistry	1	1	4	Surgical Propædeutics	3	6	4.5
Embryology	1	1	4.5	Imagiology	3	6	4
Biophysics	1	1	4.5	Pharmacology and Therapeutics II	3	6	5
Anatomy I	1	1	4.5	Animal Feeding	3	6	4
Biomathematics and Documentation	1	1	5	Clinical Rotations II	3	6	1
Complementary Activities I	1	1	1	Reproduction and Obstetrics I	4	7	5
Histology II	1	2	4.5	Surgery I	4	7	4
Cell/Molecular Biology	1	2	5	Medicine I	4	7	4.5
Biochemistry II	1	2	5	Animal Production I	4	7	4
Anatomy II	1	2	4.5	Pathology and Clinics of Parasitic Diseases	4	7	4.5
Zootechnics	1	2	5	Pathology and Clinics of Infectious Diseases I	4	7	4.5
Plant Biology, Agriculture and Environment	1	2	5	Clinical Rotations III	4	7	1
Complementary Activities II	1	2	1	Reproduction and Obstetrics II	4	8	4.5
Physiology I	2	3	4.5	Medicine II	4	8	4.5
Anatomy III	2	3	4.5	Surgery II	4	8	4
Animal Behaviour and Welfare	2	3	5	Animal Production II	4	8	4.5
General Pathology	2	3	5	Pathology and Clinics of Infectious Diseases II	4	8	4.5
Parasitology I	2	3	5	Animal Breeding	4	8	4.5
Microbiology I	2	3	5	Clinical Rotations IV	4	8	1
Complementary Activities III	2	3	1	Toxicology	5	9	4.5
Genetics	2	4	5	Diagnostic Imaging	5	9	3.5
Physiology II	2	4	4.5	Food Animal Clinics I	5	9	3.5
Economics and Management	2	4	4	Equine Clinics I	5	9	2
Parasitology II	2	4	4.5	Companion Animal Clinics I	5	9	4
Microbiology II	2	4	3	General Technology	5	9	4.5
Epidemiology	2	4	3	Veterinary Inspection I	5	9	4.5
Anatomical Pathology I	2	4	5	Clinical Rotations V	5	9	1
Complementary Activities IV	2	4	1	Food Animal Clinics II	5	10	3
Medical Propædeutics	3	5	4.5	Equine Clinics II	5	10	2
Anaesthesia and Sedation	3	5	4	Companion Animal Clinics II	5	10	3.5
Pharmacology and Therapeutics I	3	5	5	Technology of Animal Products	5	10	4.5
Nutrition	3	5	4.5				
Immunology	3	5	4	Veterinary Inspection II	5	10	4.5
Anatomical Pathology II	3	5	5	Herd Health	5	10	4.5
Clinical Rotations I	3	5	1	Clinical Rotations VI	5	10	1
				Veterinary Profession and Science Communication	6	11	1
				Curricular Traineeship (EPT + master thesis)	6	11	23



3. Curriculum



3. CURRICULUM

3.1. Educational aims and general strategy for the design, resources and management of the curriculum

The main educational aim of IMVM's curriculum is to guarantee:

- a) That all graduates achieve attributes **fully compliant with the EU Directive 2005/36/EC (as amended by directive 2013/55/EU) and its Annex V.4.1.,**
- b) **A high level of education, grounded in scientific research and hands-on practical training,** at the end of which **graduates should hold the Day One Competences listed in the ESEVT SOP Annex 2, and in the Competencies of the masters in Veterinary Medicine by FMV-ULisboa (Appendix 7).**

The **general strategy** for the design of the IMVM programme is a coherent set of units of study (US) that ensure the teaching and learning of all subjects listed in the Directive and the acquisition of Day One Competences, in a logical sequence that promotes the appropriate integration of information and the development of thinking, with a particular emphasis on clinical reasoning. To implement this strategy, FMV has human **resources** with appropriate scientific and pedagogical training, and the required facilities and equipment, which will be described forward (Area 6).

As the IMVM is FMV's main study programme, all the management bodies, in particular the Dean, SC and PC, closely supervise its daily operation. Below these management bodies, there is a pyramidal framework that monitors the organization of the teaching process from the regents of each US, to the Study Coordinator of each scientific area, until the Scientific Committee of IMVM (see 3.1.3). As an additional tool to ensure the achievement of learning outcomes, the list of **competences that graduates in Veterinary Medicine must hold at graduation** was approved by the SC on May 10, 2000. This list was revised for the IMVM on July 30, 2014, and June 18, 2024, considering European orientations for the teaching/learning of Veterinary Medicine, ESEVT Day One Competences, and recommendations from national and international past evaluations.

Aiming to improve mentoring throughout the clinical training of students, encouraging students to behave proactively, to facilitate and speed up the check-up of clinical skills, **a logbook was adopted in 2014 to record these activities.** This logbook complements the evaluation system of several US, as it dynamically demonstrates the attainment of clinical outcomes by students. In 2023, a digital version (app) of the logbook was created and began operating in the second semester of 2023-2024. We await the results of the EAEVE working group on logbooks to eventually introduce further improvements in our model.

3.1.2. Legal constraints imposed on curriculum by national/regional legislations and the degree of autonomy that FMV has to change the curriculum

The only curricular constraint imposed by Portuguese legislation on the curriculum has been the definition of its temporal extension and workload resulting from the adaptation to the Bologna process. In fact, Decree-Law No. 74/2006, subsequently amended by Decree-Law No. 65/2018, stipulates that “In university education, the master's degree can also be conferred after an integrated study cycle, with 300 to 360 ECTS and a normal duration between 10 and 12 curricular semesters of work, in cases where, for the access to a specific profession, that duration is laid down by legal provisions of the European Union or results from a stable and consolidated practice In the European Union”. As a result, all the Portuguese curricula of Veterinary Medicine were adapted to 330 ECTS and 11 semesters of duration (5.5 years). In Portugal, this regime currently applies only to the areas of Architecture and Urbanism, Pharmaceutical Sciences, Medicine, Dentistry, and Veterinary Medicine.



FMV has total autonomy to propose curriculum changes. If changes do not alter the ECTS of each scientific area, the modifications are approved by the Rector of ULisboa and communicated to A3ES and the General Directorate of Higher Education (DGES). If the ECTS of a given scientific area are modified this change must be first approved by A3ES and then communicated to DGES. Until now, these institutions have never denied a request for amendment of the IMVM's curriculum.

3.1.3. How curricular overlaps, redundancies, omissions and lack of consistency, transversality and/or integration of the curriculum are identified and corrected

There are several levels and bodies responsible for keeping curriculum updated and for identifying and correcting any overlaps, redundancies, omissions or lack of consistency.

In a 1st level, every US has a Scientific and Pedagogic Coordinator (SPC) who must be an associate or full professor, responsible for setting and coordinating its scientific and pedagogic guidance, **and a Regent (REG)**, the SPC or other teacher with a minimum of 5-year teaching experience in the US, responsible for the implementation of those guidelines and the daily operation of the US. To ensure programmatic coherence and consistency of pedagogic processes, the same SPC is responsible for the scientific and pedagogic coordination of all US that share a high programmatic interconnection (e.g. US with a number associated – for example, Anatomy I, II and III).

In a 2nd level, the Study Coordinator of each Scientific Area (Morphology and Function, Animal Production, Food Safety, Animal Health and Clinics) is responsible for the coherence, temporal sequence and interaction of the syllabus throughout the programme. This position was created when the IMVM curriculum was adapted to the Bologna process.

In a 3rd level, the Scientific Committee of IMVM is responsible for the evaluation of the study programme operation, ensuring that its objectives are met. It coordinates and harmonizes US syllabus and proposes changes to the curriculum and regulations.

Finally, in a 4th level, the SC ensures the overall quality of education, establishes the curriculum, approves the syllabus of the various US, and proposes teacher's academic service. **The PC** oversees the pedagogic quality of training, organizes and supervises the pedagogical training of teachers and other personnel involved in teaching, pronounces about educational guidelines and methods of teaching and students' assessment, promotes inquiries to assess the functioning of study programmes, US and teachers' pedagogic performance, and proposes the academic calendar, schedule, and timetable of classes and exams.

The role of students in this multilevel process is very important. No one better than them can identify overlaps or redundancies and their presence in these bodies (5 in PC, 1 in the IMVM Scientific Committee) is crucial to properly monitor the system.

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

Academic years	A	B	C	D	E	F	G	H	J
Year 1	362	18	28	222	82	0	0	26	738
Year 2	340	30	28	216	68	42	0	0	724
Year 3	312	30	2	152	30	159	0	0	685
Year 4	308	34	0	154	12	246	0	46	800
Year 5	322	112	0	84	24	208	0	0	736
Electives (6)	113.8	5.5	2.0	20.6	4.3	20.5	0	1.8	168.6
Year 6 (EPT)	14	0	0	0	0	0	812	0	826

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


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

SUBJECTS	A	B	C	D	E	F	G	H
Basic subjects								
Medical physics	30	4	22					56
Chemistry (inorganic and organic sections)	4			4				8
Animal biology, zoology and cell biology	40	4		14	6			64
Feed plant biology and toxic plants	24	4		22			6	56
Biomedical statistics	24			24				48
Specific veterinary subjects								
Basic Sciences								
Anatomy, histology and embryology	162	4		84	84			334
Physiology	62	2		52	4			120
Biochemistry	57			52				109
General and molecular genetics	51	2		50				103
Pharmacology, pharmacy and pharmacotherapy	21			16	3			40
Pathology	30			30				60
Toxicology	29	6		15				50
Parasitology	39	2		38				79
Microbiology	46	8		48				102
Immunology	27	4		26				57
Epidemiology	18	3			14			35
Information literacy and data management	5	4		7				16
Professional ethics and communication	15	30		3			4	52
Animal health economics and practice management	24		20					44
Animal ethology	24			4	22		4	54
Animal welfare	20			2			4	26
Animal nutrition	58	12		42				112
Clinical Sciences in companion animals (including equine and exotic pets)								
Obstetrics, reproduction and reproductive disorders	23			12	6	9		50
Diagnostic pathology	37			20		63		120
Medicine	104			58	14	12		188
Surgery	74	15	2			78		169
Anaesthesiology and analgesia	26	2	3			24		55
Clinical practical training in common companion animals		62			5	268	12	347
Infectious diseases	36			28		0		64
Preventive medicine	12			6		8		26
Diagnostic imaging	46	18				41		105
Therapy in common companion animals	22			6		14		42


Table 3.1.2. Curriculum hours in EU-listed subjects taken by each student (cont.)

SUBJECTS	A	B	C	D	E	F	G	H
Clinical Sciences in food-producing animals (including Animal Production and Herd Health Management)								
Obstetrics, reproduction and reproductive disorders	26			18	6	16		66
Diagnostic pathology	20			12		18		50
Medicine	8			2	2	2		14
Surgery	4	1				8		13
Anaesthesiology and analgesia	4		1			4		9
Clinical practical training in common food-producing animals	20	26				40		86
Infectious diseases	39			16				55
Preventive medicine						8		8
Diagnostic imaging						9		9
Therapy in common food-producing animals	4			7	2	4		17
Animal Production (including breeding, husbandry and economics)	82	24	8	32	16	8	28	198
Herd health management	24				24	8		56
Veterinary Public Health (including FSQ)								
Veterinary legislation (including official controls and regulatory veterinary services, forensic veterinary medicine and certification)	36	7		2		9		54
Control of food, feed and animal by-products	32	11		10	10			63
Zoonoses and their prevention	30	6		12				48
Food hygiene and environmental health	45	6		32	14			97
Basic food technology	32			30				62

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

Students must complete 6 elective US (6 x 2.5 ECTS = 15 ECTS), in a total of 168 hours of workload (84 contact hours on average), selected from a list of options proposed by the five Scientific Areas. Electives are offered in each semester of the 3rd, 4th and 5th year. Each student chooses the electives according to her/his preferences, without any restriction. Consequently, Table 3.1.4. cannot be filled with the curriculum hours taken as electives in each main area of curriculum for each student, as they vary between students. Instead, in Table 3.1.4. are shown the number of electives US that were selected by the students in each of these areas from all those proposed.


Table 3.1.3. Practical rotations under academic staff supervision (excluding EPT)

Types	List of clinical rotations (Units of study/Species)	Year	Duration (weeks) 2022/2023
Intra-mural Clinics (VTH)	Clinical Rotations I (Dog/Cat/Exotic pets)	3 rd	1 (8 h/student)
	Clinical Rotations II (Dog/Cat/Exotic pets)	3 rd	1 (8 h/student)
	Surgery I (Horse/Dog/Cat/Exotic pets)	4 th	2,3 (28 h/student)
	Surgery II (Horse/Dog/Cat/Exotic pets)	4 th	2,3 (28 h/student)
	Medicine I (Dog/Cat/Exotic pets)	4 th	13 (26 h CCD/ student) + 1 night shift/student 12 h
	Medicine II (Dog/Cat/Exotic pets)	4 th	13 (26 h CCD/ student) + 1 night shift/student 12 h
	Clinical Rotations III (Horse/Dog/Cat/Exotic pets)	4 th	4 (40 h/student)
	Clinical Rotations IV (Horse/Dog/Cat/Exotic pets)	4 th	13 (8 h Horses/student+1 night shift 12 h/student+1 weekend shift 12 h/student+8h/student afternoons shift)
	Pathology and Clinics of Infectious Diseases I	4 th	1 (2 h/student)
	Diagnostic Imaging (Horse/Dog/Cat/Exotic pets)	5 th	1 (13 h/student)
	Companion Animal Clinics I (Dog/Cat/Exotic pets)	5 th	3 (24 h/student+16h CCD/student) + 1 night shift 12 h
	Companion Animal Clinics II (Dog/Cat/Exotic pets)	5 th	3 (24 h/student+16h CCD/student)+1 night shift 12 h
	Clinical Rotations V (Dog/Cat/Exotic pets)	5 th	2 (26 h/student)
	Clinical Rotations VI (Dog/Cat/Exotic pets)	5 th	2 (26 h/student)
Ambulatory Clinics	Food Animal Clinics I	5 th	1 (18 h/student + 1h CCD/student))
	Food Animal Clinics II	5 th	1 (18 h/student + 1h CCD/student))
	Equine Clinics I	5 th	2 (8 h/student)
	Equine Clinics II	5 th	2 (8 h/student)
Herd Health Management	Pathology and Clinics of Infectious Diseases I	4 th	1 (8 h/student+24 h CS/student)
	Pathology and Clinics of Infectious Diseases II	4 th	1 (8 h/student+24 h CS/student)
	Herd Health (Food animals)	5 th	1 (8 h/student+24 h CS/student)
VPH (including FSQ)	Hygiene and Food Safety	3 rd	12 (2h/student)
	Veterinary Inspection I (Ruminants, Swine)	5 th	1(12h/student)
	Veterinary Inspection II (Poultry, Rabbit, Fish)	5 th	1(16h/student)
	Technology of Animal Products	5 th	2 (24h/student)
	General Technology	5 th	2 (24h/student)
	Veterinary Public Health	5 th	1 (8h/student)

CCD = Clinical Case Discussion, CS = Case-studies.

Table 3.1.4. Elective units of study offered in each main area of Curriculum

	2022-23	2021-22	2020-21	Mean
Basic subjects	1	1	1	1
Clinical Sciences in companion animals (including equine and exotic pets)	11	9	10	10
Clinical Sciences in food-producing animals (including Animal Production and Herd Health Management)	8	4	8	6.7
Veterinary Public Health (including FSQ)	2	4	4	3.3



In Table 3.1.5. are shown the elective US proposed to students in the last three academic years.

Table 3.1.5. Elective units of study proposed to students in the last three academic years

Subjects	A	B	C	D	E	F	G	H
Animal pest control	10	6		4	8			28
Animal production in tropical regions	28							28
Antibacterial therapy strategies in veterinary medicine	20			8				28
Applications of genetic engineering in veterinary medicine	28							28
Applications of mammalian cells manipulating in Veterinary Sciences	20			8				28
Aquaculture	14			14				28
Cat breeding	20			8				28
Clinical challenges in canine and feline endocrinology	20			8				28
Clinical immunology in companion animals	20	6					2	28
Clinical toxicology	28							28
Complementary studies in dentistry and oral surgery of dogs and cats	20			4		4		28
Dermatology - Evidence based approach	20				8			28
Dog production and uses	20			8				28
Equine emergencies and intensive care I						28		28
Equine emergencies and intensive care II						28		28
Equine neonatology	20					8		28
Food biochemistry	20			8				28
Food complementary analysis	14			14				28
Food quality from the consumer point of view	20		8					28
Forensic science in Veterinary Medicine	23			5				28
Honeybee health	25			1	1		1	28
Horse production and use	20				2		6	28
Innovative antimicrobial approaches in Veterinary Medicine	20	8						28
Lameness in sport horses	20					8		28
Morpho-functional aspects of Bravo de Lide breed	20					8		28
Multidisciplinary perspective of pain management	24			1	1	2		28
New companion animal clinics	20			8				28
Ocular repercussions of systemic diseases	10	10		4		4		28
Organic animal production	20		4		4			28
Pigeon production and pathology	15					13		28
Rehabilitation and physiotherapy in small animals	20					8		28
Risk analysis and management	8	7		13				28
The picture of alternative medicines	28							28
The Use of LASERs in Veterinary Medicine	16					12		28
Tropical infectious and parasitic diseases	21	2		5				28
Wildlife and conservation medicine	22				2		4	28

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

Beyond electives designed specifically for IMVM' students, several Lifelong Learning (LLL) Courses are organized annually in various fields of Veterinary Sciences, which are open to IMVM students.



3.2. How veterinary medicine programme meet the objectives, promotes an adequate teaching environment and encourages and prepares students for self-learning and lifelong learning

3.2.1. How does FMV ensure that the veterinary medicine programme meet the objectives

FMV ensures that the program's objectives are achieved at graduation by **assessing students' knowledge and skills, and through the QA system with its detailed indicators**. However, only later, **through surveys directed to graduates, the success of training is confirmed**. The Rectory annually carries out an Employability Survey for ULisboa graduates, one year after graduation, which analyses a large number of parameters. The results of the latest surveys were as follows:

FMV graduates (56% of response rate) showed an **employment rate of 97%** (the highest in ULisboa), of which **95% were within the area of training**, with all **getting their first job within 1 year after graduation** (best at ULisboa) and with a **gross monthly salary of €1484** (5th place in the ranking of ULisboa). Of the total employees (72% were employed), 69% had permanent contracts (employment contracts without a term or for an indefinite period), and 20% were working abroad (1st position in ULisboa *ex aequo* with the IST Engineering School). These values, which in general are **among the best in ULisboa**, reflect a high and rapid employability of graduates in their area of training, but with **lower salaries in the first phase of their professional life**.

The Rectory also carried out an **Employability Survey 10 years after graduation**. The most relevant results of FMV graduates (43% response rate) were the following:

- a) **100% were employed in paid employment** (1st place in the ranking of ULisboa Schools, *ex aequo* with 3 others), from which **92% in the area of training** (2nd best in ULisboa), 72% within the country, 24% have worked outside the country but returned, and 4% are outside and had more than one job experience,
- b) **85% are employees**, from which 92% have permanent contracts,
- c) The **average aggregate gross monthly income** of veterinary graduates was **€1,833** (14th out of 22 at ULisboa),
- d) **69% continued** studies while 62% intended to pursue studies,
- e) **80% feel prepared to respond to the demands of the activity**, but 40% would have opted for another area of professional activity,
- f) In the overall assessment of the programme, **33% of the enquired were very satisfied, 50% satisfied**, 17% somewhat satisfied, and 0% very dissatisfied (3rd best in ULisboa),
- g) **43% remain connected to the School** (3rd best in ULisboa),
- h) Among the skills **acquired, technical skills** (89%) and **problem-solving skills** (86%) were the main ones developed and initiative and self-motivation (39%) and negotiation (31%) were the least developed,
- i) Of the strengths of the course, the **contents/programs** (57%), **practical/technical training** (53%), and **facilities/equipment** (50%) were the most mentioned, while the most cited weaknesses included the transition to the job scenario (67%), the organization of the course/school (37%) and the assessment methodology (33%).

In general, the results of veterinary training are **among the best at ULisboa**, except for the remuneration of its graduates, a reflection of the labour market reality in Portugal.

In internal student surveys, **assessing the pedagogical performance of teachers and US' organization and operation**, promoted by CP since the 1980s, the average in the last four years was, respectively, **4.09** and **3.97** out of 5.

The external members of the Advisory Council also make regular statements, considering that **FMV graduates are well prepared technically, with social skills representing their least favourable attribute**, a strongly linked feature to generational aspects, which the new Study Plan seeks to mitigate.



Finally, it is noticeable that in **international rankings** the area of Veterinary Sciences of ULisboa, represented by FMV **occupies the 1st position in Portugal** and is **well ranked internationally**. In 2023, in the Shanghai Ranking of Academic Subjects, Veterinary Sciences of ULisboa was classified between the 51st and 75th best in the world and 30th in Europe, being one of the best scientific areas of ULisboa.

3.2.2. How FMV promotes a teaching environment conducive to learning

FMV is well aware of the importance of creating an **innovative and stimulating teaching-learning environment for the success** of its teaching programme. In two of their main documents, this environment is characterized:

“FMV's institutional Vision is to be one of the best Schools in Europe in teaching and research in the area of Veterinary Sciences, recognized for its high standards of quality and innovation, **offering conditions that attract the best protagonists** and providing a **conductive and stimulating environment** for the development of these activities, in a **culture of intellectual and scientific freedom, cooperation, innovation, and quality, in respect for the values of ethics, social responsibility and appreciation of merit**”.

Lines of Action for the 2022-2025 period proposed by the Dean and approved by the ScC:

“Promote a stimulating and **fruitful teaching-learning environment**, which takes into account the Day One Competences but also the evolution of paradigms for the transmission of knowledge and skills and the characteristics of today's young university students:

- i. Modernizing the methods of teaching/supervising student learning, adapting master classes, and maximizing active learning forms that foster critical and analytical thinking (PBL, CBL, case discussion, seminars, field trips, etc.),
- ii. Maximizing the use of modern information technologies,
- iii. Encourage IN and OUT students' mobility, both for studies and internships, teachers and researchers, and technical and administrative workers, promoting an enriching exchange of academic and social experiences in a **stimulating multicultural environment**.”

To achieve these goals, several favorable aspects have long been cultivated at FMV:

- **At the student level** – FMV cultivates **close and easy relationships between teachers and students**, which is facilitated by being a relatively small School, and also because **teachers are mostly on an exclusive basis and are therefore very present at the Faculty** and available to listen and talk to students. FMV has the **oldest Students' Association (SA)** in Lisbon, maintaining a **close and collaborative relationship and a permanent dialogue** with FMV' Presidency, to improve the conditions of students and support their **extra-curricular activities** (cultural, sporting, scientific, and conviviality), of which the integration of new students and the musical component (VeTuna) stand out. **SA develops a wide range of activities**, and it is shortly intended to start providing students with **psychological support** services that are partially funded by FMV. **Study spaces have also been restructured**, highlighting the remodeling of the **two bars** (South and North) including the 24-Hour Space, the creation of a **new study space** (upper atrium of Auditorium B) and the **remodeling of the terrace of Building C**, a large open space for daily socializing, where most of the student parties take place.
- **At the teacher level** – FMV provides **good working conditions** (pleasant offices, good IT equipment, financial support for **pedagogical training**, access to information databases, acquisition of books by the Library) and creates **opportunities for career progression**.

FMV also has **advantages arising from its location**, such as:

- a) The proximity of the **Monsanto Forest Park** with its beneficial influence on air quality and the possibility of outdoor physical exercise,



- b) The existence of the **Ajuda Sports Complex** 150m away, integrated into the Lisbon University Stadium, which allows the practice of various indoor physical activities,
- c) The magnificent **view over the Tagus**, which makes many of its spaces very pleasant and certainly contributes to inspiring new ideas and projects.

3.2.3. How FMV encourages and prepares students for self-learning and lifelong learning

The fast speed at which knowledge evolves requires **new learning strategies and permanent updating**. Today, it is necessary to guide the student to the “state of the art” and make him aware of **how ephemeral this state of the art is** and that its **permanent or, at least, frequent updating is crucial** to ensure quality and competitive performance in the job market. This reality is transmitted to students from the 1st year, emphasizing that knowledge and techniques are in rapid evolution and, therefore, there is a need for **permanent self-learning updating**. The form of teaching/learning in which bibliographic research in international bibliographic databases (Scopus, Web of Science/Clarivate Analytics) is requested, and the preparation of the final dissertation for the master's degree in the 6th year, clearly **stimulates self-learning** and shows students this **need for lifelong learning**. On the other hand, it is clearly transmitted to students that **graduation is only the first step in medical-veterinary training**, often followed by traineeships, internships, or residencies, a reality that they come into contact with at our VTH.

3.3. Programme learning outcomes

As stated above, the current programme's study plan was designed taking into account Directive 2005/36/EC (as amended by Directive 2013/55/EU), the ESEVT Day One Competences, the consultation of the Study Plans of reference universities, the opinions of national (A3ES) and international evaluation panels and the suggestions from teachers and students.

Each US has a file prepared by its scientific and pedagogical coordinator, reviewed by the study coordinator of the respective scientific area, and approved by the SC and PC. It describes: Number of ECTS, teaching team, learning outcomes (knowledge, skills and competencies to be developed by students, general (skills to be acquired) and specific (training profile), syllabus (theoretical and practical teaching), contact hours (theoretical teaching, practical and laboratory teaching, fieldwork, seminar, traineeship, tutorial, other, and total), evaluation (type: oral, written, continuous or others), methodology used for final classification, recommended bibliography (indispensable and supplementary). The curriculum and a shorter version of these US' files are published on **FMV's website** (<https://www.fmv.ulisboa.pt/en/study/veterinary-medicine>).

The study plan's structure ensure that learning is adequate and well-coordinated, and that knowledge is gained and skills are developed in line with its objectives. **A table detailing each of the US in the Study Plan** can be found in Appendix 4, and it includes: title, reference number, ECTS, position in curriculum, whether it is compulsory or elective, hours and modes of teaching, learning outcomes, and their alignment with the ESEVT and FMV Day One Competences.

The **logbook** also allows to monitor the progressive acquisition of skills and to achieve the outcomes, both in classes and at VTH. Compliance with all activities set out in the logbook is a requirement for starting the EPT.

The **evaluation of the program by the national agency (A3ES) every 6 years** is also a moment of general reassessment of the syllabus and outcomes of the study plan.



3.4. Description of how and by who the core curriculum is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

IMVM curriculum has evolved to **integrate the evolution of knowledge, to accommodate EU Directives and Standards and Guidelines for QA, European Higher Education Area (ESG) recommendations for the teaching/learning of Veterinary Medicine, and also the recommendations resulting from the processes of national (A3ES - in 1999, 2004, 2011, 2015 and 2022) and international (EAEVE, in 1989, 2000, 2007 and 2017) assessments.** As a consequence, apart from monitoring the curriculum, FMV made some major curricular revisions, which resulted in several curricular improvements.

Most of the IMVM's current curriculum was implemented in the academic year of 2007-2008 and resulted from an adaptation of a previous plan (approved in 2005) based on the Bologna Process, following national legislation. This adjustment was relatively minor, as the 2005 curriculum already incorporated many of the concepts and principles of the Bologna Process. The following guidelines directed this revision:

- a) **Reorganization of the current subjects into US,**
- b) Ensuring the **acquisition of competences required for professional practice** by veterinarians graduated by FMV, approved by SC on 10th May 2000,
- c) Adoption of **a semester system,**
- d) Introduction of **electives** (representing 5% of the entire curriculum),
- d) Adoption of the **ECTS system,**
- e) Appointment of a **Study Coordinator per scientific area**, responsible for the adequate integration of subjects and pedagogic methodologies throughout the programme.

After this revision, there were several minor changes in the curriculum:

- a) The individualization of Horse Clinics teaching in a separate US in 2013 (previously it was included in the Food Producing Animals Clinics US),
- b) The introduction of a new US, Veterinary Profession and Science Communication, in 2022-2023, reinforcing the professional component and the organization of the master's thesis,
- c) The constant renewal of electives US with the offer of new emerging topics.

In July 2014 and in June 2024 the SC **revised and approved the Day One Competences of students graduated by FMV**, in accordance with ESEVT Day One Competences (Appendix 7).

All these curriculum revisions were **discussed and approved by the SC and the PC, approved by the Dean and the Rector**, published in the official government journal, and advertised through FMV's website. The curriculum is permanently assessed by the bodies described above (3.1.3.) and revised whenever significant changes are necessary. **A new regular revision** has been discussed since 2020 by a Curricular Revision Committee that comprises members from the SC and PC, current students, and with the input of former alumni. In addition to normal syllabus scientific updating, the evolution of knowledge, the recommendations of **EAEVE and A3ES, and suggestions from the FMV Advisory Board**, this new curriculum aims to introduce new strategies to improve students' skills and competences, with more clinical training rotations that would maximize our VTH's resources and the new insights of the veterinary profession.

3.5. Description of the organisation, selection procedures and supervision of the EPT

IMVM consists of an organized set of US corresponding to 301 ECTS, distributed by 11 semesters, and **a curricular traineeship** including the preparation of a master thesis and its discussion in a public defence accounting for 29 ECTS. **This Elective Practical Training (EPT) or curricular traineeship** includes compulsory training activities that each student must achieve before graduation to enhance their experience, professional knowledge, and soft skills, making the real world of veterinary medicine known in its multiple aspects and creating employment



opportunities. Its **content varies depending on the scientific area** (e.g. Clinical, Animal Health, VPH, including Food Safety and Quality, and Animal Production) and the Plan established by the supervisors in order to ensure the necessary practical training and support the master's thesis. Most EPTs are carried out in clinical areas, in hospitals, and veterinary clinics, but there are also EPTs in other areas, namely in livestock farms, zoos, natural reserves, oceanariums, pharmaceutical companies, food distribution companies, etc., often opening doors to the job market in these areas. EPT is organised either **extra-murally** with the student being under the direct supervision of a qualified person (e.g. a veterinary practitioner) and / or a member of the teaching staff, or **intra-murally** by a member of the teaching staff. In the case of intramural internships, the ranking and selection of candidates for labs and supervisors is carried out based on criteria approved by the SC, and must be completed by April 1st of the academic year prior to the internship. **The SC is responsible for the curricular traineeship**, coordinating procedures through the **IMVM curricular traineeships Committee (CTC)**. This Committee includes at least 1 teacher from each scientific area.

Students are free to choose their supervisors, the scientific area, and the location where they wish to accomplish their curricular EPT. Students unable to find a location for the EPT must ask CTC to facilitate placement and supervision. By their own initiative, or based upon elements advertised by FMV, each student contacts the supervisor and co-supervisor and submits the corresponding form to the Academic Office, containing a **Traineeship Agreement** (Appendix 9), signed by the student, the supervisor and co-supervisor (if applicable). This form is verified by the Academic Office and by the CTC. The Academic Office notifies the applicant and supervisors of the application approval before July 30th of the preceding academic year.

The supervision of the EPT and its thesis is performed by a PhD holder or a specialist (holders of an academic degree and a professional CV of proven quality and relevance who, cumulatively, entail professional experience in the scientific area for at least 10 years with effective practice in last 5 years), **whose merit is recognized by the SC**, and do not hold an indefinite contract with a higher education institution. If the supervisor does not work at FMV, the student should indicate a co-supervisor, chosen from the FMV teaching staff holding a PhD. For further information, namely the competencies and duties of the supervisors, please consult articles 8 to 12 of the IMVM Regulation (Appendix 8).

Table 3.5.1. Curriculum days of External Practical Training (EPT) for each student

Subjects	Minimum duration (weeks)	Year of programme
Production animals (pre-clinical)	500 practical hours minimum during the final curricular traineeship	6
Companion animals (pre-clinical)		
Production animals (clinical)		
Companion animals (clinical)		
VPH (including FSQ)		
Zoos, natural reserves, oceanariums, pharmaceutical companies, food distribution companies, etc		

3.6. How the EPT providers are linked to FMV, assess the students and provide feedback.

All EPT providers **meet the relevant national Veterinary Practice Standards**, controlled by the responsible official bodies like the Veterinary Surgeons Association and the General Directorate for Food and Veterinary.

The **Traineeship agreement** (Appendix 9), signed by the student as well as the supervisor and co-supervisor (if applicable), includes and states:



- a) Student name, rights, and duties, in addition to Student Disciplinary Regulations and ULisboa Code of Conduct and Good Practice,
- b) Supervisor and co-Supervisor name, professional category, ID card, ORCID No. (if applicable), professional license n° (if applicable), company, address, and duties,
- c) Local, scientific area of veterinary sciences, period, and provisional theme,
- d) The FMV bodies responsible for the EPT,
- e) The guarantee that the student is covered by insurance that protects against personal accidents occurring during the EPT.

The **supervisor** must integrate the jury that evaluates the thesis and its discussion on the public examination and attend the meetings of the jury, providing information to the jury about the **student's performance during the EPT period** and feedback on the EPT programme. CTC is responsible for the overall supervision of the EPT, including liaison with EPT providers if necessary. Its current coordinator is Professor José Henrique Duarte Correia.

3.7. Implications of students in the preparation, recording and assessment of their EPT

As stated above, **students are free to choose their supervisors, the scientific area and the location where they wish to undertake the curricular EPT**. Given the **enormous variability of EPT contents**, depending on the scientific area and the plan established by the supervisors, **it is not possible to prepare an EPT monitoring logbook that covers all possible areas**. The master's thesis assumes this role, including a summarized description (3-6 pages) of the activities carried out during the EPT, that must clearly show the degree of student involvement in these activities and/or the cases followed (article 13 of the IMVM Regulation).

CTC monitors all phases of the EPT and keeps close control of its operation and progress. Students can always present their signed or anonymous complaints to the CTC and before submitting their dissertation they must answer a survey about EPT functioning.

3.8. Comments on Area 3

Electives offered to students showed a steady increase in the number and diversification of topics over the years. The scheduling of electives in a “compact” 1.5 weeks format at the end of the 1st semester and again at the beginning of 2nd semester, fully occupying the mornings or afternoons, **proved to be a sound strategy** allowing students to be focussed on the elective and dedicate the rest of the day to study. To test this assumption, students have an approval rate of > 99% at the first exam and the average classification is ≥ 15.5 out of 20. Dozens of professionals, mostly veterinarians, from private and public sectors, are invited by the SPC of these elective US to share their knowledge, skills, and points of view with students, enabling an enriching experience for all attendees. Electives have also been an inspirational model and a basis for the design and offer of several LLL courses.

The FMV Continuing Education Programme offers short courses, seminars and workshops, often in a post-labour schedule to address the needs of professional trainees. Some of these advanced courses fit on consecutive weekends.

The current networking experience with joint master's degrees offered in consortia with other schools of ULisboa, should give rise to new electives and new postgraduate courses, seminars and workshops. Presently, this teaching consortia includes the masters in Animal Production Engineering with the School of Agriculture, Microbiology with the School of Engineering, the Faculty of Sciences and the Faculty of Medicine, and Horse Sciences with the School of Agriculture and the Faculty of Human Kinetics.

3.9. Suggestions of improvement in Area 3

In the meetings of the **ScC and the Advisory Board**, external members representing the social, economic, and professional sectors related to FMV's fields of training and research **made the following comments/suggestions**:

1. Graduates in Veterinary Medicine:

- a) FMV continues to be the reference Veterinary School in Portugal and its graduates have an excellent image, with remarkable technical preparation,
- b) There is an excessive demand for the Companion Animals Clinic, undervaluing other professional areas of the veterinary profession. It was suggested to organize seminars at FMV with veterinarians working in professional areas with lower attractiveness and visibility.

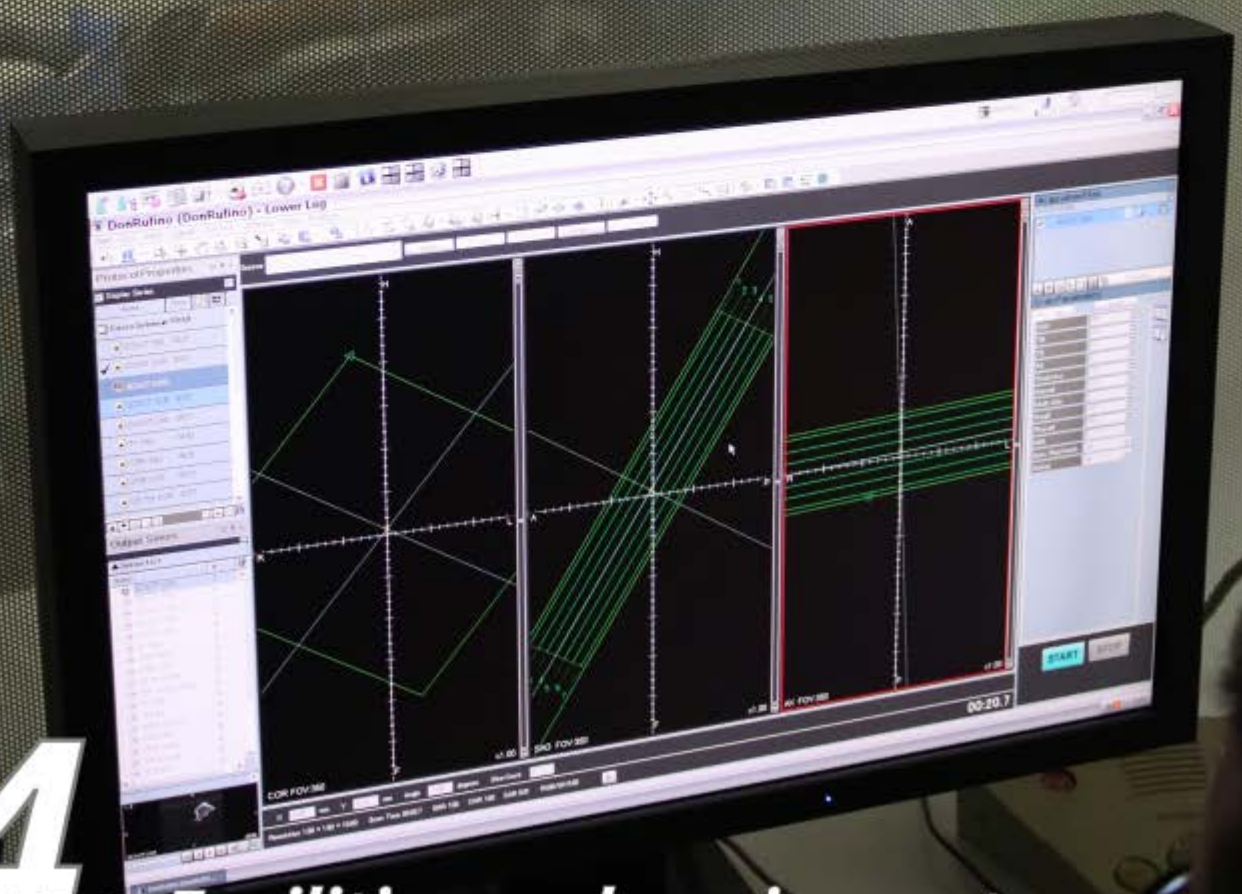
2 The curriculum:

- a) Need to reinforce training towards the improvement of soft skills, communication skills, behaviour, creativity, ethics and social maturity, although the latter was referred to as a generational setback; information about the veterinary profession, from its organizations to professional opportunities and its own ethics, is also increasingly essential today.

As stated above, a **new curriculum** has been discussed in the SC and PC since 2020, which aims to introduce new strategies to **improve students' skills and competences**, with **more clinical rotations** that would maximize our VTH's resources, **strengthening the "One Health" approach** and the **new insights of the veterinary profession** (see Appendix 10). Also, very important in this review is the need to **modernize and innovate pedagogical methodologies** due to the evolving interests and behaviours of students, as well as how they communicate, the general availability of information, and the introduction of new teaching technologies with the use of artificial intelligence.







4 • Facilities and equipment





4. Facilities and equipment

4.1. Location and organisation of the facilities used for the veterinary curriculum

FMV is located in **Lisbon**, in ULisboa **Campus of Ajuda**, on a land plot of 35000 m², with a total constructed area of **47297 m²**, next to Monsanto Forest Park and overlooking the Tagus River. The Faculty consists of **9 buildings** with the following designations and main functionalities:

Building A - Government bodies, administrative services, library and 2 auditoriums (117 seats).

Building B - Auditorium (227 seats).

Building C:

- floors 0 and 1 – Students' Association, 10 teaching labs (25-30 seats), 2 lecture halls (91 seats) and 2 computer rooms (30 seats),
- floor 2 - open area, food technology pilot plant and FSQ labs,
- floors 3 and 4 - teaching offices, research and VTH Diagnostic Centre labs, technical rooms and classrooms (25 - 30 seats), PhD students' rooms.

Building D - VTH, vivarium, metabolic room, teaching offices, and reproduction lab.

Building E – VTH.

Building F - Lecture halls (121 seats) with the possibility of the presence of large animals.

Building G - Post-operative care for horses; anatomy and necropsy rooms, biological isolation and containment unit.

Building H - Ruminant and horse stables.

Building I - Riding arena.

All facilities have free wireless access, to the internet via the Eduroam network. A map with the areas used for the curriculum is provided in Appendix 5a. Distances for Ambulatory Clinics and Preventive Veterinary Medicine, Reproduction and Animal Production extramural classes, regarding the most visited livestock farms and horse centres, and for FSQ & VPH extramural classes, namely to slaughterhouses and foodstuff processing units, are also provided in Appendix 5b.

The strategy of maintenance, modernization and expansion of equipment by FMV respects four main vectors: **renovation and upgrading; novel advancements; trends in society and market demand; financial sustainability**. All of these converge towards a major objective of the institution, i.e., to maintain a high-quality research-based education, focusing on problem-solving, and in permanent contact with Society's demands.

Unfortunately, the **Faculty's public budget does not formally provide funding for maintenance, rehabilitation, or acquisition of facilities and equipment**. Therefore, it is not possible to rationally plan these tasks, but rather, establish a plan and according to financial availability at the time, carrying out the most urgent tasks. This urgency is dictated by the degree of degradation of the facilities, the need for new facilities for teaching or research and the replacement of equipment that is out of order or otherwise obsolete. Fortunately, FMV's annual budget has increased significantly since 2016, producing positive balances that have allowed the **general rehabilitation of the Faculty's facilities and the renovation and acquisition of modern equipment**, particularly for the VTH. This first phase is currently completed with the rehabilitation of buildings A, B, C, D, E and F, and the remaining buildings G and H will follow soon.

All facilities **comply with all relevant Portuguese legislation, including health, safety, biosecurity, accessibility and sanitary facilities**, including disabled people, and EU animal welfare and care standards. To ensure compliance with this legislation, there are people responsible for the different areas, namely an occupational health and safety technician, a



maintenance team and veterinarians responsible for the welfare and animal health of resident animals.

4.2. Premises used for teaching, study and leisure

The premises and equipment for different purposes are described below.

4.2.1 Premises for lecturing, group work, practical work, and skill labs

PREMISES	Nº	Area (m²)	EQUIPMENT IN EACH UNIT
LECTURING			
Auditorium (227 seats)	1	369	1 desktop computer with an internet connection. 1 high-quality data show. A 23 m² régie fully equipped with modern sound and lighting equipment. Air-conditioning system.
Lecture halls (1 of 170 m², 121 seats; 2 of 139 m², 117 seats; 2 of 94 m², 91 seats)	5	636	1 desktop computer with an internet connection, 1 fixed laser data show, sound and lighting equipment, camera and microphone for e-learning, 1-2 whiteboards, and air-conditioning system.
Computers rooms	2	147	15 desktop computers with internet connection, 1 fixed data show, 1 whiteboard, air-conditioning system.
Video transmission of surgeries in live animals	1	-	The Surgical Theater (surgery room from the VTH) is equipped with 1 Sony video camera with AC out adapted to a surgical microscope Zeiss OPMI Lumera and 1 TV set Samsung hanging on the wall to allow for visualization of the microsurgical procedures in real clinical cases.
Videoconference system	1	-	Available in room A.10.
SUBTOTAL	10	1152	
GROUP WORK			
Classrooms (3 of 30.75 m², 25 seats) 2 of 27.7 m², 20 seats)	5	147	1 computer with internet connection, 1 portable data show and 1 whiteboard.
PRATICAL WORK			
Laboratories (ranging from 46.5 m² to 143.2 m²; average size 82.3 m²; mode 93.6 m²)	24	1976	The standard equipment available in each laboratory are 3-4 workbenches with PVC-edged laminate working surfaces, 2 refrigerators (clean and dirty material), 1-2 laminar flow cabinets, 1-2 incubators, 10 optical microscopes (not all), 15 Bunsen burners, 1 centrifuge, 10-16 washbasins (4 stainless steel sinks), base and wall cabinets and shelves for storing materials, 3-4 ergonomic high ring chairs, 25-30 laboratory stools. 1 computer with internet connection, 1 portable data show and 1 whiteboard or 1 interactive whiteboard. Laboratory dress code and biosafety instructions are affixed at the doors of each laboratory equipped with several bio boxes and safety shower stations. Additional equipment is added according to the specific needs of each US.
CLINICAL SKILLS TRAINING CENTER - Rooms for clinical skills training on dummies, cadavers and organs			
Rooms ranging from 36 to 90 m²	4	252	See Appendix 5a
TOTAL	43	3527	



4.2.2 Premises for study and self-learning, catering, locker rooms, accommodation for on call students and leisure activities and sanitary:

Study and self-learning:	Nº	AREA (m²)
Rooms for study and self-learning	1	250
Students' Association Cafeteria & 24-hour study facility	1	175
Group work rooms	4	55
Open space Building C, 2 nd floor, 20 tables, 6 seats each	1	3,480
TOTAL	9	3,960

Most of the aforementioned premises have tables and chairs, which can be arranged in the most suitable layout according to students' type of study (study or self-learning vs. group work). All rooms have free Wi-Fi and students have access to all electronic resources through the Eduroam (Education Roaming) wireless network. It is possible to eat and drink in some of these premises, and food and drinks are available either at the cafeteria or through automatic food and beverage vending machines.

Catering	Nº	AREA (m²)
ULisboa canteen	1	1200
Students' Association Bar	1	220
Room with microwaves to heat meals	1	250
Dormitory cooking facilities	1	16
TOTAL	4	1686
Lockers rooms		
	4	96
TOTAL	2	48
Accommodation for on call students		
Dormitories	2	74
Individual rooms	4	87
TOTAL	6	161
Leisure activities		
Open space at Building C, 2 nd floor	1	3,480
Outdoor entrance courtyard	1	905
Indoor courtyard of building B	1	179
Students' Association Cafeteria, 24-hour study & leisure space	1	175
TOTAL	4	4,739
Sanitary		
Toilets	41	469
Washing and/or shower + toilet	33	520
TOTAL	6	989

FMV is located within the perimeter of Monsanto Forest Park. Students often enjoy the Park for tours, entertainment, freshmen reception ceremonies, academic tradition celebrations and outdoor activities promoted by the various nuclei of the Students' Association such as dog walking, horse walking, bird watching and visits to the Lisbon Wildlife Rehabilitation Centre. Students' Association and the Final Year Commission regularly organize parties and concerts on the terrace of Building C 2nd floor.

Most teachers have **individual offices** on the upper floors of building C, with 11.15m², **comfortable, well equipped and with views over the Tagus River.** There are also teachers' offices in building D, which are more spacious, some shared by two teachers. The administrative staff from the academic, human resources and financial areas have rooms and offices in building A, which are also spacious, well equipped and comfortable. Laboratory support staff have rooms



and changing rooms in building C. Staff supporting animal activities have rooms and changing rooms in buildings D and H.

The **research laboratories and technical support rooms** are mainly located on the 3rd and 4th floors of Building C and some in Building D. They are **modern, well-lit spaces, with modern equipment**, where teachers, researchers, Master and PhD students carry out their work.

4.3. Livestock facilities, animal housing, core clinical teaching facilities and equipment used by FMV for teaching purposes

Animal housing respects legal directives and promotes the best husbandry, welfare and management practices. All facilities comply with legal biosecurity guidelines, with their own Regulations setting out the principles and rules. Environmental sustainability is also a priority goal. All types of waste are processed in compliance with the law, with a dedicated team responsible for collecting and sending it for processing outside the Faculty.

4.3.1 Premises for animal housing

	Nº	AREA (m ²)	No. PLACES
Premise for healthy animals:			
Covered horse riding arena	1	612	-
Uncovered horse-riding arena (“redondel”)	1	77	-
Horse stalls with individual paddocks	20	420	20
Cow free stalls	1	231	20
Cows calving rooms	2	18	1
Sheep and goats’ stalls	6	36	30
Kennel ⁱ	1	94	8
TOTAL	32	1488	79
Premise for research animals:			
a) Vivarium	1	392	500 mice /200 rats
b) Metabolic room	1	160	12
TOTAL	2	552	12
Premise for hospitalised animals:			
Hospitalisation & intensive care dog ward	1	21	23
Hospitalisation & intensive care cat ward	1	19	13
Horse stalls (for 1 horse)	1	54	6
Horse stalls (for mares and foals)	1	120	6
Horse hospitalisation	1	300	12
Intensive care horse stalls	1	77	5
Bovine hospitalisation	2	14	1
Sheep, goats and calf s hospitalisation	12	30	12
TOTAL	20	635	78
TOTAL	54	2675	169

The **Vivarium** is a facility for housing laboratory animals, namely rodents (rats and mice) and rabbits, licensed by Direção Geral de Alimentação e Veterinária (DGAV), the competent national authority responsible for the application of legislation relating to the protection of animals for scientific purposes. All procedures carried out at Vivarium are under National and European legislation regarding animal welfare and need to be previously submitted to the Animal Welfare Body (Orgão Responsável pelo Bem Estar Animal - ORBEA) of FMV for subsequent approval by DGAV. The Vivarium **is mainly used by CIISA/FMV researchers**, but also as part of collaborations/partnerships with researchers from other institutions, namely the pharmaceutical industry and research laboratories from other areas of common interest.



Research at Vivarium is highly committed to **following the 3Rs principles** towards the responsible use of laboratory animals: replacement, whenever possible, of the animal model with alternative methods, reduction of the number of animals, and refinement of experimental methodologies and animal handling techniques.

4.3.2. Premises for clinical activities, diagnostic services including necropsy, FSQ & VPH

Clinical activities:

	Nº	Area (m ²)	SPECIES	UNITS OF STUDY [§]
Consultation rooms	10	132	Companion animals	Clinical Rotations, Companion Animals Clinics
Dentistry consultation room	1	17	Companion animals	Anaesthesia and Analgesia, Surgical Propaeutics, Surgery, Clinical Rotations V, VI, Companion Animals Clinics
Reproduction and Obstetrics consultation room	1	34	Companion animals	Reproduction and Obstetrics I
Ophthalmology consultation room	1	17	Companion animals	Companion Animals Clinics, Clinical Rotations III, IV, V, VI
Treatments and wound dressing room	2	44	Companion animals	Surgery, Companion Animals Clinics, Clinical Rotations
Biological samples collection room	1	22	Companion animals	Reproduction and Obstetrics, Clinical Rotations, Companion Animals Clinics
Blood Bank	1	20	Companion animals	Medical Propaeutics II, Medicine, Surgery
Consultation rooms	2	147	Horses	Clinical Rotations III, IV, V, VI, Equine Clinics
Reproduction and Obstetrics consultation room	1	58	Food animals and horses	Reproduction and Obstetrics I and II
Surgery rooms	4	64	Companion animals	Anaesthesia and Analgesia, Surgical Propaeutics, Clinical Rotations III, IV, V, VI, Surgery
Surgical patient preparation rooms	2	64	Companion animals	Anaesthesia and Analgesia, Surgical Propaeutics, Surgery
Rooms for medical gas storage	2	22	Multispecies	Anaesthesia and Analgesia, Surgical Propaeutics, Surgery
Operating theatre	1	78	Horses and food animals	Anaesthesia and Analgesia, Surgical Propaeutics, Surgery
Anaesthesia and recovery room	1	36	Horses and food animals	Anaesthesia and Analgesia, Surgical Propaeutics, Surgery
Horse riding arenas	2	789	Horses	Clinical Rotations III, IV, V, VI, Surgery, Equine Clinics
Maternity	1	57	Horses and food animals	Reproduction and Obstetrics, Clinical Rotations, Surgery, Equine Clinics, Food Animals Clinics
Biological samples collection room	1	58	Horses and food animals	Reproduction and Obstetrics, Clinical Rotations, Food Animals Clinics, Equine Clinics
Infectious Diseases Isolation Unit	1	223	Multispecies	Infectious Diseases, Clinical Rotations, Companion Animals Clinics, Horse Clinics, Food Animal Clinics
TOTAL	31	1834		

[§] Every time we report, for instance, Surgery, it means Surgery I and Surgery II. We took this option to reduce table size and improve its reading


Diagnostic services including necropsy:

	Nº	AREA (m ²)	SPECIES	UNITS OF STUDY
Computed tomography room	1	23	Companion animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
Computed tomography room	1	30	Horses and food animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Horse Clinics, Food Animals Clinics
MRI scan	1	20	Multispecies	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Clinics
X-ray room	1	35	Companion animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
X-ray processing room	1	11	Companion animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
X-ray processing room	1	11	Horses and food animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Horse Clinics, Food Animals Clinics
Dental radiography room	1	17	Companion animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
Ultrasonography room	1	17	Companion animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
Fluoroscopic surgery room	1	17	Companion animals	Surgery
Endoscopy room	1	14	Companion animals	Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
Electroretinography room	1	17	Companion animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Companion Animals Clinics
Radiology room	1	82	Horses and food animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Equine Clinics, Food Animals Clinics
X-ray processing visualisation room	1	9	Horses and food animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Equine Clinics, Food Animals Clinics
Ultrasonography room	1	23	Horses and food animals	Imagiology, Diagnostic Imaging, Clinical Rotations III, IV, V, VI, Surgery, Equine Clinics, Food Animals Clinics
Blood biochemistry lab	1	49	Multispecies	Biochemistry, Medical Propaedeutics I, Clinical Rotations, Companion Animals Clinics, Equine Clinics, Food Animals Clinics
Endocrinology lab	1	31	Companion animals	Medical Propaedeutics I, Clinical Rotations, Companion Animals Clinics
Chemotherapy room	1	17	Companion animals	Clinical Rotations III, IV, V, VI, Companion Animals Clinics
Radioisotopes lab	1	31	Companion animals	Clinical Rotations III, IV, V, VI, Companion Animals Clinics
Histology & Pathology lab	7	176	Multispecies	Histology, General Pathology, Anatomical Pathology
Parasitology & Parasitic Diseases lab	5	143	Multispecies	Parasitology, Pathology and Clinics of Parasitic Diseases
Virology & Immunology lab	1	30	Multispecies	Microbiology
Bacteriology lab	1	30	Multispecies	Microbiology
Infectious Diseases lab	1	58	Multispecies	Pathology and Clinics of Infectious Diseases



(cont.)	Nº	AREA (m ²)	SPECIES	UNITS OF STUDY
Necropsy room	1	114	Multispecies	General Pathology, Anatomical Pathology, Pathology and Clinics of Infectious Diseases II, Pathology and Clinics of Parasitic Diseases, Veterinary Inspection
Necropsy support lab	1	20	Multispecies	General Pathology, Anatomical Pathology, Pathology and Clinics of Infectious Diseases II
Necropsy lab preparation room	1	20	Multispecies	General Pathology, Anatomical Pathology, Pathology and Clinics of Infectious Diseases II
TOTAL	36	1045		

FSQ & VPH (slaughterhouses, foodstuff processing units):

Intra-mural: practical teaching of FSQ	No	Area (m ²)	UNITS OF STUDY
Microbiology FSQ Lab	1	70	Hygiene and Food Safety, General Technology, Technology of Animal Products
Chemistry FSQ Lab	1	84	
Food technology lab (pilot plant)	1	115	
Veterinary Inspection practical classes lab (fish)	1	113	Veterinary Inspection II
TOTAL	4	382	
Extra-mural: slaughterhouses (and related premises):			Fishing port:
STEC- RAPORAL, in Montijo, 45.2 km from FMV, species: domestic ungulates. SANTACARNES, in Santarém, 85.5 km and CASO, in Mafra, 38.9 km, pigs. AVIBOM, in Ramalhal, 64.4 km, poultry. AVIPRONGO, in Azambuja, 59.6 km and INTERCOELHO, in A-dos-Cunhados, 66 km, rabbits.			DOCAPESCA. Located in Setúbal. 63.4 km from FMV. Species: different species of fishes, molluscs and crustaceans.

Other premises: Library (827 m²), teachers' offices (1415 m²), an area of 1712 m² allocated to CIISA network of research labs, a 275 m² network of maintenance facilities (warehouses, laundries, technical areas and first aid office), and Students' Association (260 m²) (Appendix 5a).

4.3.3. Equipment used for clinical purposes:

Teaching purposes: Only specialized teaching equipment is mentioned. To avoid repetition elsewhere in this document, the list of equipment reported in the next table is not included in this item, although is used for clinical services. All clinical equipment is used by students.

LIST OF THE MOST IMPORTANT EQUIPMENT USED FOR TEACHING PURPOSES			Nº
Microscopes and magnifying glasses	150	Blood, gas and electrolyte analyser	1
Centrifuges and ultracentrifuges	58	Real Time PCR	2
Incubators	44	Fluorescence microplate reader	1
Laminar flow cabinets	19	Automatic biochemistry analyser	1
Spectrophotometers	14	Electro retinometer	1
Micrometers	6	Ovoscope	1
Nitrogen-protein distillers	5	Microtomes	6
Thermal cyclers	4	Pasteurizer	1
HPLC and HPTLC chromatographs	4	Ham processing machines	3
Protein mineralizers	3	4-5°C refrigerators and -18°C freezers	144
Cryostats	2	-80°C ultra-freezers	6
Densitometers	2	Food texture analyser	1
Smokehouses and ovens	2	Vacuum machine model T4	1
ATP bioluminescence meters	2	Chromatography system for proteins' purification	1
Molecular imaging system analysis software and UV fluorescence equipment	1	Microwave oven to determine moisture content	1



Clinical services: Only specialized equipment used for clinical services is reported.

List of the most important equipment used for clinical services	Nº
Computed tomography (Toshiba model Astelion Advance 16-row)	1
Computed tomography (Pegaso, Imaginalis)	1
MRI scan (Hitachi Aperto, 0.4 Tesla)	1
X-ray apparatus	2
Portable X-ray generator and digital acquisition system	1
Potter-Bucky diaphragm (Radiology)	1
Ultrasound scans (one portable)	5
15" high resolution touch screen ExaPad for ultrasound scanner	1
Anaesthesia machines	12
Electrocardiograph device	1
Cardiorespiratory monitors	10
Ultrasound stethoscopes	2
Surgical microscope (Zeiss Opmi Lumera 300 for microsurgery)	1
Surgical vacuum cleaners	2
Infusion pumps	28
Surgical oscillating saws	2
Helica TPS Stern system of total hip replacement	1
Hamou Endomat 26331020-1 (laparoscopy and hysteroscopy)	1
Oto/ophthalmoscope sets	4
Otoscope video endoscopes sets	2
Phacoemulsification system (cataract surgery and anterior vitrectomy)	1
Vista Scan Combi View for digitisation of image plates (intral and extraoral formats)	1
Ventilator	4
Synthes neurosurgery engine	2
Dynamic respiratory endoscopy for horses	1
Oesophageal pressure sensor	1
Plethysmography system for horses	1
Veterinary video endoscope PV-SG 28-140 Karl Storz	1
Karl Storz 7200B Hopkins Telescope for endoscope, 30×4mm×18cm	1
Karl Storz arthroscopic for small animals 30° 2.7	1
Arthroscopic high flow blower, 5.5mm, 13.5cm	1
Surgery vacuum system	6
Oxygen therapy chamber	1
Marchionesses, operating tables and necropsy tables	32
Reflovet clinical chemistry analyser	1
Shearing machines, clippers and trimmers	9
Vacuum clipper	1
Electroejaculator	1
Portable milking machine	1

4.4. Core clinical teaching facilities

4.4.1. Description of the organisation and management of the VTH and ambulatory clinics

The VTH is divided into **Companion Animals Hospital, Equine Hospital, Food-Producing Animals Hospital, Diagnostic Centre, Biological Isolation and Containment Unit, and Pharmaceutical Services**. The VTH is managed by a **Hospital Council** chaired by the Dean and includes the Presidents of SC, and PC, of the Clinical and Animal Health departments, the Clinical Directors of the 3 Hospitals, the coordinators of the other 3 units, and the Practice Manager.

Companion Animals Hospital (CAH): CAH operates 24/7, 365 days a year, with a dedicated team comprising academic professionals, veterinarians, nurses, support staff, and students. The hospital is divided into various departments: General Practice, Medicine, Diagnostic Imaging,



Surgery, and Inpatient facility. In addition to initial consultations, the hospital offers referral and specialized second opinions in various fields, including neurology, orthopaedics, cardiology, dermatology, ophthalmology, oncology, obesity and clinical nutrition, internal medicine, reproduction, infectious diseases, exotic species, and behaviour. Referral cases come from primary consultations within the VTH and external practitioners, primarily from Lisbon.

Inpatient facility is divided by species, i.e., cats and dogs, in different wards. Patients with infectious diseases are immediately transferred to the Biological Isolation and Containment Unit (BICU), a special ward in a separate building, distantly located from the main hospital. Daily briefings with owners are made by phone call and follow-up consultations are provided in a specific room of IDIU.

Emergencies, alerted by call or identified in the admission area, are observed by a nurse or veterinarian that verifies the urgency and, if confirmed, are channelled to a veterinarian and on-call students in the first consultation room, equipped with an anaesthetic machine and an emergency trail. After stabilization, the animal goes to the ward with monitoring and oxygen support. The equipment available is adequate for all complementary examinations (radiology, blood analysis, and ultrasonography). Surgery rooms are always available including weekends and nights, and a surgeon is on call in case of any emergency surgery. Students on 24-hour shifts are present in all emergency cases.

Every day at 8.30 AM and 2.30 PM, veterinarians, nurses, and students responsible for in-house patients conduct clinical rounds to update the next shift on patient conditions and any cases requiring special attention. A similar briefing takes place during the **transition to the night shift**. Additionally, each morning, a nurse conducts a thorough check of equipment, stock availability, and hygiene in every room. Any deficiencies are promptly reported to the Practice Manager and, if needed, to the Clinical Director.

Weekly, on Tuesdays from 2 to 3 PM, the staff convenes for meetings aimed at discussing complex cases, hosting seminars on topics of interest, or featuring presentations by representatives from the pharmaceutical industry. This also accounts for educational and professional development, encompassing clinical and pedagogical training. Also, this fosters a culture of continuous learning and skill enhancement, encouraging student participation, especially those doing a traineeship. Additionally, journal clubs are regularly held, wherein a veterinarian presents an article for discussion. Access to all scientific journals subscribed by FMV is available on the hospital's computer terminals for both clinical staff and students.

QA procedures and protocols are very important in the CAH workflow. Diagnostic approaches and treatment plans are discussed during the clinical rounds between clinicians and students. These protocols are defined by the most differentiated elements of the staff and ensure that team members adhere to agreed methods, achieving uniformity of performance in a specific case. This compliance provides public assurance that the rights, safety and well-being of patients are protected. Flow Charts of main emergency procedures, drug doses, and treatment protocols are also provided inwards.

The Clinical Director of CAH or the Practice Manager handles possible owner complaints that are registered in an official informatics platform. He discusses with the clinic staff involved in the specific case and tries to identify the reasons that motivated the complaint and the way to prevent similar occurrences. In cases of unexpected deaths, the Clinical Director performs an in-depth investigation. In case of related modifications, all the staff members are informed about the decisions and new protocols to be implemented.

The Clinical Director also decides about current expenses, organizes labour and human resources, proposes personal recruitment, and presents the problems, the development plan, and major investments to the management council. New staff members are selected according to predefined criteria. They are readily familiarized with the particular requisites of working in a VTH, and shown the best ways to interact with other team members and, in particular with



students. Specific guidance is given to veterinarians on how to train and assess students and how to use the logbook. All new elements enjoy an adaptation period of one week, during which they accompany an experienced member of the staff to become acquainted with procedures, protocols, and CAH routines.

The Equine Hospital (EH) is open 365 days per year, 24 hours a day, relying on teams that include academic staff, veterinarians, nurses, technicians and students. Cases are always scheduled by phone or e-mail. Owners usually transport their horses but, if necessary, the faculty can provide transportation. **Student clinical teaching is provided by three main streams:**

1. **An Ambulatory Clinic** that assists over 300 horses/year. These are mainly from nearby studs with which the faculty established protocols and contracts, and provide students adequate training and exposure to day to day clinical work and routines.
2. **An in-house Diagnostic Imaging and Medicine Service**, which works with elective first opinion as well as referral cases from other veterinarians.
3. **A Surgery and Emergency Service**, working exclusively as an in-house referral service providing a 24-hour specialized service.

Clinical cases are mainly referred by colleagues from studs with which collaboration protocols are in force (National Cavalry Police – GNR; Forest Police; Portuguese School of Equestrian Art – EPAE; National Stud – CN). The majority of cases are seen in-house.

Referral cases are mainly related to the EH differentiating skills: internal medicine, surgery and lameness, diagnostic imaging and reproduction, and obstetrics. **Complementary exams available** include radiology, musculoskeletal and medical ultrasound (including abdominal, respiratory and echocardiography), ECG, resting and dynamic video endoscopy of the upper airways, and gastroscopy. **Most advanced surgical procedures** performed routinely include colics, arthroscopy, dental and upper airway surgery, and general soft tissue procedures. **A highly detailed respiratory diagnostic service is also provided**, with the use of lung echography, respiratory endoscopy, bronchoalveolar lavage, percutaneous trans-tracheal aseptic aspiration, dynamic respiratory endoscopy, lung function tests (plethysmography, arterial blood gases and oesophageal indirect pleural pressure measurement) as well as allergy tests.

Students' exposure to clinical cases is maximized: Curricular involvement with the EH starts in 3rd year, with clinical sessions where hospital routines and procedures are explained (Clinical Rotations I and II). Then, 4th year students rotate through the EH and train in more advanced procedures (for example, catheter placement, nasogastric tubing, nerve blocking principles) during Clinical Rotations III and IV, and 5th year students are involved with elective cases and daytime emergencies during their practical rotations of Equine Clinics. Finally, on an extracurricular voluntary basis, all students have the opportunity to join the out-of-hours rotations. A group of 7-10 students is assigned an "on-call week", and every day and night 2-3 of those students stay at the EH and provide direct assistance to the clinicians on-call. The remaining students of the group are contacted and come to the hospital whenever there is an emergency. Students from all years are eligible to join this volunteer program, which currently involves approximately 150 highly motivated students.

4.5. Students' access to diagnostic and therapeutic facilities

During their 2nd and 3rd years, students gain access to necropsies and engage with clinical pathology laboratories. Starting in the 3rd year, students are introduced to various diagnostic methods available in the hospital, such as X-rays, CT scans, MRI, ultrasound, endoscopy, dermatoscopy, tonometry, biomicroscopy, ophthalmoscopy, cytology, and other in-house laboratory analyses. They also interact with **critical care and recovery units**, as well as the hospital's pharmaceutical services. This exposure continues through the 4th and 5th years, with increasing contact time and a deeper level of active participation. Students **first access the surgical facilities** in their 3rd year, where they observe real clinical surgical cases. This initial exposure



includes understanding and adhering to the surgical procedures, including patient handling, pre-surgical preparation of both patient and surgery team, and patient recovery, all of which by witnessing the anaesthesia and surgical act.

In the 4th year, students **actively engage in surgical procedures** during the Surgery I and II clinical rotations, conducted in the first and second semesters. In groups of six, students participate in surgical cases, including admitting patients with the assistance of a nurse or 6th-year student, communicating with pet owners about the procedure and managing expectations, assisting in initial patient handling such as inserting an IV catheter, administering pre-medication, performing the anaesthetic protocol, participating in the pre-surgical preparation of patient and team, setting up the surgical instrumentation table, observing the surgical procedure and patient recovery, discussing case follow-up, and engaging in communication with pet owners, both in person and over the phone, to enhance soft skills. During the surgical procedures, students take an **active role as surgeon assistants, anaesthesiology assistant and circulating personnel**, rotating these roles between surgeries to ensure hands-on experience.

The **communication skills training** includes real case studies and real scenarios, conveying professional communication techniques, compassionate communication strategies, methods for handling difficult situations, effective communication strategies with colleagues, and essential self-care practices for veterinary professionals. This training covers basic communication skills such as **models of communication, verbal and non-verbal communication, and active listening**.

4.6. Isolation facilities

Since October 2013, the VTH had a **Biological Isolation and Containment Unit (BICU)** for hospitalization of animals with confirmed **infectious diseases or suspected animals** waiting for a diagnosis. It has two hospitalization wards for dogs and two others for cats, with a capacity for four patients per room. It operates under negative pressure, high-efficiency particulate air (HEPA) filters, a video surveillance system, PPE, and SOP. For cardiopulmonary resuscitation and simple surgical interventions, BICU has a kitten/puppy precision incubator, an anaesthesia machine and an oxygen concentrator. The working room has a desktop with QVET software installed to search and update medical records, Internet access, fixed telephone, tables, and chairs. All non-disposable materials are made of stainless steel, and there is a washbasin in the preparation room for immersing the contaminated stainless-steel items in a biocide solution before placing them in the dishwasher.

The **Equine BICU** has a capacity for two horses and is located in a separate box. A large one with a hoist capacity able to accommodate infectious neurologic diseases, and a smaller one. The BICU contains its own pharmacy and equipment.

Premises for isolated animals:	Nº	AREA (m ²)	No PLACES
Biological Isolation and Containment Unit:			
a) Small animals	1	148.5	16
b) Horses	1	131.5	2

4.7. Ambulatory clinic for production animals

Food-Producing Animals Hospital (FPAH): The FPAH team includes **four members of the teaching staff and one resident**. Of the academic staff, **two teachers are ECBHM diplomates** and one **is in their second year of their residence to apply to the ECBHM**. This team also includes annually two or three-6th year students who are doing their EPT intra-murally. Each week, two **groups of 6-7 students**, supervised by one member of the teaching staff, go out in 9-seat vans during **two full days (8.30 am to 5.30 pm) and one morning (8.30 am to 1.00 pm)**. Additionally,



students will **follow up on cases of resident animals at the VTH**. The vans are **equipped with basic instruments and materials for clinical examination and treatments**.

Clinical work at collaborative farms is not charged, and, therefore, it is usual to use drugs belonging to the farms, also because of national legislation regarding the supply of veterinary medicines. The FPAH service is open every day for emergency calls from the community. However, the great majority of services are provided to **farms with which collaboration protocols were established** or, less commonly, to cases referred by practitioners. The farms routinely visited include **several large dairy cattle farms, a large beef-producing farm** that includes several suckler herds and large outdoor feedlots, **dairy sheep and goat farms and one pig farm**. Farms are located at a maximum distance of 80 km from Lisbon (Appendix 5b).

The **decision to prioritize ambulatory clinics versus receiving farm animals at the VTH** resulted from the following main reasons: Individual clinical work associated with a herd health approach is better performed on-farm; farmers are not willing to let animals return to the farm due to biosecurity reasons; students should incorporate into their clinical work elements from the analysis of husbandry and management conditions; **communication skills with farmers and farm workers and record analysis are better achieved on-farm**. Nonetheless, clinical cases are also regularly seen at the VTH. These include “**new companion animals**” (e.g. young sheep, pigmy goats, Vietnamese Pigs), that are brought to the hospital by the owners for clinical assessment, dehorning, castration, hoof-trimming and other procedures. Finally, the FPAH is also responsible for clinical cases and routine procedures such as **disbudding, dehorning and hoof trimming, occurring within the resident ruminant population**.

Students must perform most activities to ensure maximum hands-on involvement. This including full physical examinations, ultra-sound examinations, blood, urine or milking sampling, helping out in surgeries (e.g. skin suturing), performing disbudding and administering injections or fluid therapy. Students participate in full aspects of consultations, comprising medical, surgical, infectious, nutritional, reproductive, and husbandry issues. They frequently perform cow-side complementary exams, like blood, urine, and milk analysis (iStat, urinalysis, ketone body measurement, refractometer, Delvo test) and collect biological samples for subsequent analysis. Individual and Herd Health approaches are often combined to get students to embrace real farm-animal clinical work.

Field necropsies are performed and students are asked to collect samples and prepare them for the lab. When biosecurity allows, the cadavers are also used for **surgeries practised by students** (e.g. digit amputation, eye enucleation, laparotomy, teat, and other sutures).

Each group must present a detailed report of activities until the end of the week following their ambulatory service period. This report is reviewed by the teacher who grades the report on a 0 to 20 scale. **On Friday, the week following clinical activities**, students have to **present and discuss one or two clinical cases, as well as summarise their other cases**. This presentation is also scored (0 to 20) by the members of the teaching staff. Additionally, students are graded individually for the interest, involvement, and knowledge shown during the week. These scores will be used for a weighted average with the final exam grade.

The vehicles and equipment used for the ambulatory clinic are the following:

VEHICLE	Nº	MAXIMUM CAPACITY (Nº passengers)
Mercedes vans	3	9
Hyundai van	1	9
Jeep Land Rover	1	9
TOTAL	5	45



4.8. Transport of students, live animals, cadavers, materials from animal origin and other teaching materials

Students are transported using our 28-seater minibus or rented buses. Smaller groups, like those for the ambulatory Food-Producing Animal Clinics, Horse Clinics, Herd Health and Infectious Diseases are transported in our minivans or jeep:

	VEHICLE	Nº	MAXIMUM CAPACITY (Nº passengers)
Students' transportation	Nissan bus	1	28
	Mercedes vans	3	9
	Cars	1	5
	TOTAL	5	42
Ambulatory Clinics	Mercedes vans	3	9
	Hyundai van	1	9
	Jeep Land Rover	1	9
	TOTAL	5	45

The transport of live animals to the Faculty involves two distinct situations:

- Horses that come to VTH are either transported by their owners or through FMV's jeep and a suitable trailer,
- Pet animals whose owners, for reasons of urgency or impossibility of travel (*e.g.* elderly people) request transportation, are transported in a van licensed by the national authority for this purpose.

VEHICLE	Nº	ADDITIONAL INFORMATION
Jeep Land Rover	1	With 1 trailer for two horses
Peugeot partner	1	To pick up dogs and cats' in case of domiciliary emergencies
TOTAL	2	

The transport of cadavers is provided by a certified company. The transport of other teaching materials (*e.g.* organs from slaughterhouses) is carried out using the Faculty's vehicles already described.

All procedures comply with the Portuguese Veterinary Practice Standards, defined by the National Authority for Animal Health (General Directorate for Food and Veterinary - DGAV) and are monitored by the Veterinary Surgeons Association (OMV).

4.9. Operational policies and procedures

Proposals of changes in facilities, equipment and biosecurity procedures are presented by the SPC of US to the Department to which they belong, which analyses them and, if agreed, are submitted to the Dean's office. Ameliorations are communicated to staff and students in regular meetings of the management bodies, through e-mails, and to stakeholders on the webpage. Procedures are implemented by the Management Council, assessed, and revised by the SC, PC, ScC and Advisory Board. The QA system monitors and assures clinical and laboratory services, including regular monitoring of the feedback from students, staff, and clients.

Biosecurity is a main issue of FMV's commitment. There is a Hygiene and Biosafety Committee appointed by the Dean, which is chaired by one of the vice-deans and includes one teacher from each relevant area (*e.g.* Microbiology, Food Safety, Animal Facilities), the coordinator of the FMV Diagnostic Centre, the VTH Practice Manager, the coordinator of the FMV's Technical Services and Maintenance Office and the Occupational Health and Safety technician. This Committee is responsible for writing and updating the Manual of General Procedures for Biosecurity, Health

and Safety (Appendix 6), and for its implementation. Its compliance is monitored by the Occupational Health and Safety technician. Students and staff are aware of biosecurity guidelines and so facilities, equipment and animals are safely used and handled. All facilities comply with all relevant Portuguese legislation.

All types of **waste are processed in compliance with the laws**, with a dedicated team responsible for collecting and sending it for processing outside the Faculty. A new centre for the recovery of organic waste produced by our resident animals is planned and financed by the PRRP.

4.10. Comments on Area 4

Although recently built (1999), **the poor quality of construction** led to rapid degradation of materials and structures, in particular due to water infiltrations, unfinished details and unsuitable materials. As a consequence, **extensive rehabilitation works have been carried out in recent years**. FMV restored most of the exterior (façades and roofs) of its buildings and their aesthetic beauty. The renovation of the interior spaces and the modernization of equipment (some ongoing), have allowed and will continue to improve comfort.

FMV has a large area of open spaces, namely on the terrace of the 2nd floor of Building C, that has been recently renewed to install comfortable niches for student group study, and also for leisure, relaxation and socializing among students, teachers, practitioners, researchers and support staff after or between classes and work. Portuguese weather favours these opportunities, which in the past was not sufficiently explored. These niches will allow for the successful implementation the preventive measures designed to ensure social integration of students and staff. The **renew of vehicles**, the bus, mini-bus and car fleet is ongoing, considering replacement and/or renting approaches.

4.11. Suggestions of improvement in Area 4

Financing within the scope of the **Portuguese Recovery and Resilience Plan (PRRP)**, allow several important improvements that will be run until June 2026, such as:

- The installation of **solar panels, heating and cooling equipment, and roof isolation** (740 548.41€), allowing an improvement in energy efficiency and a production of around 40% of the energy consumed,
- The **modernization of teaching conditions and methodologies** of 3 new active learning rooms, more adapted and flexible, new audio-visual equipment (interactive whiteboards, binocular microscopes, magnifying glasses, projectors, screens, filming and transmission systems for monitors), a 3D Anatomy & Virtual Dissection Platform (Anatomage), several animal dummies and simulators important for clinical training and fulfilling the principle of never the first time in live animals, and a unit for the recovery of organic waste produced by our resident animals and those from the VTH (1,161,872€).





5. *Animal resources and teaching material of animal origin*





5. ANIMAL RESOURCES AND TEACHING MATERIAL OF ANIMAL ORIGIN

5.1. Number and variety of healthy and diseased animals, first opinion and referral cases, cadavers, and material of animal origin

5.1.1. Global strategy about the use of animals and material of animal origin for the acquisition by each student of Day One Competences

The principles of the 3Rs (Replacement, Reduction, and Refinement) developed over 50 years ago as a framework for humane animal research, **have been gradually embedded in the FMV global strategy concerning the use of live animals for teaching purposes.**

- **R FOR REPLACEMENT:** As previously mentioned, FMV opened in 2017 a Clinical Skills Training Centre, where a mix of self-made dog and cat dummies and full-size, realistic canine and feline dummies and equine and bovine models, gives students risk-free and realistic hands-on experience in practical simulation training, used in 7 compulsory US of the 3rd and 4th years. This represents a considerable financial investment and reflects a serious compromise with the 3Rs policy. In parallel, the PC has been working with the Study Coordinator of each scientific area and individual teachers, to replace live animals with cadavers whenever possible.

- **R FOR REDUCTION:** 51 animals are kept at FMV premises for teaching, demonstration and training purposes, including 4 dogs, only used for demonstration of non-invasive manipulation such as physical examination and behaviour. Every year, the PC inquires all teachers responsible for US that require live animals for demonstrations and student training, about the minimum number of live animals needed. A document is then filled in the beginning of the year stating the need for use of live animals in the classes and a commission certifies that the animals are only used for the necessary demonstrations, and they are rotated to be used in a short-term basis.

- **R FOR REFINEMENT:** Beyond setting up and monitoring an adequate balance between reduction to a minimum of the use of live animals, and maximizing training alternatives like dummies and animal cadavers, another strategy is in place aiming to reduce the number of live sheep purchased to be euthanized for practical classes and assessments of Anatomy, by replacing them by dog cadavers. Its success depends upon the efficacy of the weekly logistics of dog cadavers' collection at the Lisbon Council Animal Shelter and private veterinary hospitals of Lisbon.

Finally, the principles of the 3Rs are fully applied for animal research at CIISA, with an Ethics and Animal Welfare Commission and an Animal Welfare Body (ORBEA) being responsible for monitoring the use of live animals in research according to national and international legislation. The experimental design of all research projects using animals are preliminarily examined by those bodies and only research projects that minimize the use of animals and ensure welfare standards reducing pain and suffering are approved. Moreover, FMV signed the Transparency Agreement in Animal Experimentation in Portugal, launched on June 21, 2018, an initiative supported by the Portuguese scientific community, in collaboration with the European Animal Research Association (EARA).

5.1.2. Specific strategy in order to ensure that each student receives the relevant core clinical training before graduation.

The 4th and 5th years of curriculum were designed aiming to offer consistent core clinical training opportunities before graduation, namely to ensure that students develop Day One Competences demanded by international organizations and the global market. To achieve these objectives strong investments have been made to equip and modernize the VTH and to employ teachers, veterinarians, nurses, and auxiliary staff to increase FMV teaching capacity, supervision



of traineeships, and the performance on clinical applied research. The quality of services provided and the promotion targeted to specific clients, namely of second opinions and referenced cases, contributed to the sustainable growth and recognition of VTH as a major pillar of FMV's teaching and learning environment.

To maximize the potential of the VTH and extramural Ambulatory Clinics for practical training, since 2012-2013, theoretical classes have been concentrated into 3 half-days per week, leaving the remaining time fully available for rotations classes. This arrangement allows for an **effective weekly rotation schedule**. As a specific strategy to ensure that each student receives the relevant core clinical training before graduation, the **logbook** was introduced in 2014-2015.

From 2005-2006, a Herd Health US was included on the 5th Year schedule, and two veterinarians, specialists on Pig and Avian Health and Production, were appointed as invited teachers. They are both consultants of major national economic groups of pig and poultry producers and have been facilitators of visits to intensive units and supervisors of curricular traineeships in Herd Health and Production.

Since 2013-2014, two new US, Equine Clinics I and II, were included in the 5th year to enhance horse clinics hands-on. From 2014-2015, **a new extramural activity was included in the practical program** of Pathology and Clinics of Infectious Diseases I and II, to further improve the balance between individual and population medicines, consisting of a 4-hour visit to ruminant farms dedicated to Herd Health and Veterinary Preventive Medicine.

Clinical US focusing on specific groups of animal species are: Pathology and Clinics of Parasitic Diseases, Pathology and Clinics of Infectious Diseases, Reproduction and Obstetrics, Medicine, Surgery, Companion Animal Clinics, Equine Clinics, Food Animal Clinics and Herd Health, with equitable practical training devoted to companion and food animal species.

In the last three academic years, the **number of patients examined/treated by each student** (EAEVE indicators) is well above the median values of the EAEVE indicators in the case of companion animals, ruminants, and pigs, and between the median values and the minimal values in the case of horses and exotics. Currently, the **balance between the clinical practical training of different animal species** is the following: companion animal species including exotic pets - 208 hours, equines - 126 hours, food animals – 81 hours. This represents respectively 50,1%, 30,4% and 19,5% of the student clinical training. Only hands-on activities were considered for the previous calculations, and clinical case discussions, PBL, and CBL were not taken into account. This clinical training load per student and by animal species complies with Day One Competences and it is adjusted to present trends on the labour market demands.

The **balance between individual and population medicines** is 77% vs. 23% (companion animal species, exotic animals, and equines - 488 hours; food animals and herd health - 146 hours). These percentages also comply with Day One Competences and are adjusted to current market demands.

The **balance between first opinion and referral cases** in 2023-24 was 65.1% *versus* 34.9% in companion animals plus exotic pets and 53.7% *versus* 46.3% in equines. The balance between first opinion and referral cases in food-producing species has been along the years approximately 90% *versus* 10%, respectively. Nevertheless, the ambulatory clinic works with both routine simple cases and complicated cases which are available when students visit the farms. All the above indicators reflect FMV mechanisms governing the balance between first opinion and referral cases in different animal species and the respect for good referring practices.

The balance between consultations (one-day clinic) and hospitalizations is achieved by splitting students into five services during their time at the VTH: Surgery, Medicine, Diagnostic Imaging, in-house patients, and BICU. This practice starts in the 3rd year, 5th semester, with Clinical Rotations I, and continues through the 5th year, 10th semester, ensuring students have opportunities to follow up on patients.



Regarding the **balance between acute and chronic cases**, unfortunately, the electronic patient record systems GURUVET or QVET does not provide reliable and reproducible descriptive statistics to quantify the frequency of acute versus chronic cases. Nevertheless, students gain substantial exposure to both types of cases. Acute cases are prevalent in emergency, trauma, and routine consultations conducted at the VTH and Ambulatory Clinics. Students are also exposed to numerous chronic clinical cases, such as skin disorders in dogs and cats, leishmaniasis in dogs, chronic kidney disease and FIV/FelV in cats, chronic idiopathic inflammatory bowel diseases in horses, and mastitis in cows, among many others.

5.1.3. Description of the procedures developed to ensure the welfare of animals used for educational and research activities

FMV has a particular concern and adopts appropriate procedures to ensure the welfare of animals used for educational and research activities respecting the 3 Rs leading philosophy underpinning the humane use of animals in teaching and scientific research, the WOAHP Recommendations for Animal Welfare, and Portuguese regulatory framework. Moreover, **FMV has an Ethics and Animal Welfare Commission and an Animal Welfare Body (ORBEA)** that monitors and shares information regarding the use of animals in education and scientific research.

5.1.4. Description of how cadavers and material of animal origin for training in anatomy and pathology are obtained, stored and destroyed

Three sources are used to **obtain animal cadavers**: (1) **culled ewes and goats**, bought from brucellosis-free flocks, specifically for the practical teaching and assessment of Anatomy, (2) **cadavers of companion animals and horses** donated by VTH clients for teaching and scientific purposes, (3) **cadavers donated by private veterinary hospitals**. From these:

- An average of 127 ewes and goats were bought each year for practical teaching and assessments of Anatomy and Pathology and Clinics of Parasitic Diseases,
- An average of 359 cadavers of companion animals were used per year in practical classes and assessments of 9 compulsory US: Anatomy I, II and III, Anatomical Pathology I and II, Anaesthesia and Analgesia, Surgical Propaedeutics, Pathology and Clinics of Parasitic Diseases, and Reproduction and Obstetrics,
- An annual average of 15 cadavers of horses that died or were euthanized at the VTH were donated to the faculty by their owners for teaching and scientific purposes. These cadavers were used for practical classes and assessments of Anatomical Pathology,
- Other teaching and final assessment materials of animal origin include organs collected at abattoirs or bought in markets (bovine genitals, small ruminant and pig lungs, small ruminant and pig livers, bovine kidneys), cadavers donated from slaughterhouses (151 rejected broilers) and animals bought in markets (chickens, rabbits, fishes, crustaceans, cephalopods and bivalves).

Average data per academic year is shown in Tables 5.1.1.a and 5.1.1.b.

Table 5.1.1.a Cadavers used in practical anatomical training

Species	2022-23	2021-22	2020-21	Mean
Cattle	0	0	0	0
Small ruminants	42	42	42	42
Pigs	0	0	0	0
Companion animals	66	78	174	106
Equine	0	0	0	0
Poultry & rabbits	0	20	0	20
Aquatic animals	36	36	36	36
Exotic pets	40	40	40	40
Insects (bees)	70	70	70	70

Table 5.1.1.b Material of animal origin (e.g. organs) used in practical anatomical training

Species	2022-23	2021-22	2020-21	Mean
Cattle	46	46	36	42.7
Small ruminants	18	18	18	18.0
Pigs	54	54	54	54.0
Companion animals	14	14	14	14.0
Equine	8	8	8	8.0
Poultry & rabbits	2	2	2	2.0
Aquatic animals	1	1	1	1.0

Table 5.1.2. Healthy live animals used for pre-clinical training (animal handling, physiology, animal production, propaedeutics)

Species	2022-23	2021-22	2020-21	Mean
Cattle	22	22	22	22.0
Small ruminants	7	8	8	7.7
Pigs	0	0	0	0
Companion animals	46	46	8	33.3
Equine	18	18	18	18.0
Poultry & rabbits	0	0	0	0
Exotic pets	0	0	0	0
Others (specify)	0	0	0	0

Table 5.1.3. Number of patients seen intra-murally (in the VTH)

Species	2022-23	2021-22	2020-21	Mean
Cattle	0	0	0	0
Small ruminants	0	0	0	0
Pigs	0	0	0	0
Companion animals [§]	14,099	13,000	12,073	13,057
Equine	326.0	296.0	278.0	300.0
Poultry & rabbits	164.0	119.0	132.0	138.3
Exotic pets	181.0	155.0	155.0	163.7

[§] These data correspond to the following sum: 1st opinion consultations + Referral consultations + Emergency consultations + Surgeries + Computerized tomography + X-ray + Ultrasound scans. Follow-up consultations complementary diagnostic exams were excluded from the calculation.

Table 5.1.4. Number of patients seen extramurally

Species	2022-23	2021-22	2020-21	Mean
Cattle	483	242	331	352.0
Small ruminants	917	1170	1955	1347.3
Pigs	0	3	3	2.0
Companion animals	0	0	0	0
Equine	378	197	270	281.7
Poultry & rabbits [§]	0	0	0	0
Exotic pets	0	0	0	0


Table 5.1.5. Percentage (%) of first opinion patients used for clinical training

Species	2022-23	2021-22	2020-21	Mean
Cattle	90	90	90	90
Small ruminants	90	90	90	90
Pigs	90	90	90	90
Companion animals	40.7	45.3	49.5	45.2
Equine	53.7	40.0	49.3	47.6
Poultry & rabbits	85	85	85	85.0
Exotic pets	85	85	85	85.0

Table 5.1.6. Cadavers used in necropsy

Species	2022-23	2021-22	2020-21	Mean
Cattle	30	15	46	30.3
Small ruminants	8	33	78	39.7
Pigs	2	0	3	2.5
Companion animals	375	338	365	359.3
Equine	21	6	18	15.0
Poultry & rabbits	165	161	127	151.0
Aquatic animals	1	0	2	1.0
Exotic pets	0	0	2	0.7

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

Animal species	2022-23	2021-22	2020-21	Mean
Cattle	7	6	6	6.3
Small ruminants	14	22	36	24
Pigs	3	3	3	3
Poultry	5	5	5	5
Rabbits	0	0	0	0
Aquatic animals	0	0	0	0
Equine	1	1	1	1
Others (specify)				
Zoo wild animals	1 ¹	1 ¹	1 ¹	1
Oceanarium fish and mammals	1 ¹	1 ¹	1 ¹	1
Aquaculture fish farming	1 ¹	1 ¹	1 ¹	1

¹ In elective US

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

Species	2022-23	2021-22	2020-21	Mean
Ruminant's slaughterhouses	2	2	0	1.3
Pig's slaughterhouses	2	2	0	1.3
Poultry slaughterhouses	1	0	0	0.3
Related premises*	3	2	0	1.7
Others (specify)				
Rabbit's slaughterhouses	1	1	0	0.7
Fishing port	1	1	0	0.7

* Premises for the production, processing, distribution or consumption of food of animal origin



5.2. Organisation and management of the teaching farm(s) and the involvement of students in its running

FMV has a permanent intra-mural herd of farm animals (currently assembling 18 horses, 20 cows, 4 sheep, and 3 goats) allowing for teaching and demonstration of many techniques and skills in the scope of different US. **Extramurally, students visit several farms**, mostly in small groups (6-7 students), where they have the opportunity to observe and participate in procedures and activities, always under the supervision of FMV teachers. For example, focusing on those three aspects pointed out, **students are frequently involved**, both intramural and extramurally, in:

- a) **Preparing animals for parturition, observing and assisting births, and caring for neonates**, performed in Reproduction and Obstetrics as well as during visits to farms in Food Animals Clinics, extramurally, students also **perform routine procedures (vaccination, disbudding, treatments, hoof trimming)** during Food Animals Clinics, Pathology and Clinics of Infectious Diseases and Herd Health, and visits to farms to discuss husbandry issues in Animal Production,
- b) **Students visit milking parlours and participate in milking procedures**, especially in the scope of the udder health management in Food Animals Clinics and Reproduction and Obstetrics,
- c) **Feeding is practiced in the intra-mural herd and also extramurally** during farm visits and specific study visits in the scope of Plant Biology, Agriculture and Environment, Zootechnics, and Animal Production, in which different feed, conservation, and distribution techniques are shown.

As stated above, during the curricular traineeship and according to the scientific area, **students** also have the opportunity to **reinforce the training of these procedures, under the supervision of local practitioners and teaching staff**.

5.3. Active participation of students in the clinical workup of patients

5.3.1 How and by whom the nursing care skills are implemented and taught to undergraduate students

Nursing care skills for undergraduate veterinary students are implemented and taught through a structured combination of clinical experience and simulations done by VTH nurses. Clinical experience is gained through rotations at the VTH alongside **experienced veterinary nurses** and veterinarians, applying their skills in real-world settings. They participate in patient admissions, pre- and post-surgical care, sedation protocols, anaesthesia monitoring, emergency response, and client communication. During these rotations, mentors including nurses provide personalized guidance and immediate feedback to help students refine their skills. In **hospitalized patients**, the experience of veterinarians and veterinary nurses is also essential in helping undergraduate students in animal handling and restraint, sample collection and sending samples to laboratories, drug administration, pre-surgical preparation, anaesthesia induction and maintenance, surgical instrumentation handling, and post-surgical recovery and care. Patient triaging is extensively covered in practical training. Students learn to assess the urgency of a patient's condition quickly and effectively to prioritize treatment. They are taught to evaluate vital signs, recognize signs of distress or critical conditions, and make rapid decisions on the order of treatment. This training includes scenarios such as trauma, poisoning, severe infections, and other emergencies, ensuring that students are well-prepared to handle high-pressure situations and provide the best possible care for their patients.

Hands-on clinical practice supervised by nurses involves training in hospitalized animals such as placing IV catheters, administering medications, collecting blood and urine samples, monitoring vital signs, collecting and testing diagnostic samples, nutritional critical support, wound management, including wound dressing, and post-surgical more complex dressing procedures.



These skills are practiced on animals in the controlled hospital environment, with nurses providing supervision and informal feedback, and selected activities are registered in the student's logbook.

5.3.2 Group size for the different types of clinical training

Intramurally: in core clinical rotations and emergency services at the VTH, group size is standardized to 6 students per teacher, except BICU which only takes 4 students simultaneously.

Extramurally: at the Ambulatory Clinics (horses and food animals), group size is standardized to 6-7 students per teacher.

5.3.3 Hands-on involvement of students in clinical procedures in the different species.

The hands-on involvement of students in clinical procedures in different species begins in the 4th semester, 2nd year, in Anatomical Pathology I, it then follows a progression to more complex tasks until the last semester (10th). This learning dynamics can be summarized as follows:

- **2nd/3rd years:** perform a necropsy of various domestic animals, collect material for complementary exams, perform fine needle aspiration and punch biopsies, and write necropsy reports.
- **3rd year:** hands-on routine activities at VTH performing simple tasks like helping in animal restraint, weighing, measuring body temperature, collection of biological samples, and helping nurses and veterinarians prepare and administrate medication under supervision.
- **4th year:** two modules of training in Basic and Advanced Life Support in companion animals, hands-on routine activities at VTH and Ambulatory Clinics, including clinical history collection and clinical examinations, collection of biological samples, in-house diagnostics, preparation and administration of medication, vital signs monitoring, registry in QVET of clinical signs, participating in surgeries in groups of 6 students performing the roles of anaesthesiologist assistant, surgeon assistant, and circulation personnel, finalizing with report writing.
- **5th year:** enlarged extension of hands-on routine activities at VTH and Ambulatory Clinics, including more detailed and complex clinical procedures, for example, assessment of pain, animal anaesthesia and contention for X-ray, CT and ultrasonography, induction and maintenance of anaesthesia, surgeon assistance, registry in QVET of the patient medical data, meeting with owners, euthanasia, cadaver packaging, and storing, telephone follow-up of released patients, report writing, and report writing for referral veterinarians.

All these procedures are supervised by teachers, practitioners, and veterinary nurses. VTH curricular traineeship students perform all the procedures mentioned above and participate in the clinical round meeting with the veterinarians in charge of the hospitalization, a surgery clinician, and an internal medicine diplomate, daily at 8.30 am, and in the weekly discussion of a selection of clinical cases every Wednesday afternoon.

In the beginning of each year, all students are reminded (refresher session) of the rules for the management of residues, like syringes, needles, blood and swabs, and the risk of hospital infections.

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

The use of extended periods of clinical case discussion, thinking and reading by students is a learning methodology in place in the 4th and 5th years of the curriculum. For 4th year students, in the US of Medicine, a clinical case selected based on its didactic interest, is introduced to students twice a week, to trigger an active PBL approach focusing on the development of



knowledge acquisition, enhanced group collaboration and communication. These PBL sessions take 4 hours and cover all organic systems.

In Surgery, each group of 6 students produces a case report each semester, selected among the surgeries in which they participated. In the first semester, they present the case report to their colleagues as a PowerPoint presentation of 20 minutes under the supervision of teachers who act as facilitators. In the second semester a clinical case is selected among the surgeries in which they participated and is delivered as a scientific paper.

In Pathology and Clinics of Infectious Diseases I, CBL is used to train students regarding integrated approaches to the diagnosis of infectious diseases in dogs, cats, swine, and poultry, and individual vaccination schedules in dogs and cats. VTH real cases are used to stimulate and underpin the acquisition of knowledge, skills, and attitudes. Cases are written to provide the student with a background of the patient. Supporting information is also delivered, such as the latest research articles, vital signs, clinical signs and symptoms, laboratory results, and free Internet access to the electronic database of veterinary vaccines authorized in Portugal.

Finally, for 5th year students, CBL is fully explored twice a week, **in Companion Animal Clinics**, where a group of ~20 students discusses one or two different clinical cases. Similar approaches are used in **Equine Clinics** and **Food Animal Clinics**, with a couple of nuances. In Equine Clinics, before the planning and distribution of daily clinical work, students are asked to review information concerning the cases of hospitalized horses they will be caring and to share their conclusions with their colleagues. Again, teachers act as facilitators. In Food Animal Clinics, a specific activity named **“Weekly Clinical Cases Discussion”** is in place for students to deepen their understanding of the cases they assisted at the Ambulatory Clinic. These presentations are shared with their classmates.

This sequence of learning methodologies allows students to enhance their **problem-solving attributes** and their **clinical performance**, to develop a **collaborative, team-based approach** to their education, **hypothesis generation skills** and to **consolidate and integrate learning activities**.

5.4. Medical records for patients seen intra- and extramurally under Core Clinical Training

The VTH electronic patient record system (QVET) stores, validates and processes all dog, cat, exotic species, and horse patient records, including data from radiology, CAT scan, endoscopy, laboratory results, ultrasonography, anaesthesia, and necropsy. Food Animals patient records are stored and processed in Excel files developed by teachers.

Students are exposed to QVET in the 3rd year during their practical sessions of Clinical Rotations at the VTH. These databases are permanently available for students to support them with real cases to prepare practical assignments for several US of the 3rd, 4th and 5th year, such as Clinical Rotations, Medicine, Surgery, Companion Animals Clinics and Equine Clinics and to complement their study for the final exams of Diagnostic Imaging, Companion Animals Clinics or Equine Clinics. In addition, QVET records and Food Animals Excel files patient records are used by all students who make their curricular traineeships at the VTH and are a crucial source of information for their dissertations.

These patient record systems are also relevant for teachers because they provide clinical cases for their practical classes, namely for PBL and CBL sessions (Clinical Rotations, Pathology and Clinics of Infectious Diseases, Medicine, Surgery, Imageology, Diagnostic Imaging, Companion Animals, Equine Clinics, Food Animals Clinics, Reproduction and Obstetrics), as well as data for their exams.

Regarding **research activities**, patient record systems are used by CIISA researchers and PhD students in clinical research projects and by teachers and veterinarians engaged in residency-training programmes run by EBVS to fulfil their log needs.

5.5. Comments on Area 5

Tables 5.1.1 and 5.1.2 reflect FMV's **commitment to minimize the use of live animals and the positive impact of the use of dummies on reducing the number of live animals used in pre-clinical training**. This commitment respects the minimum number of live animals required for practical demonstrations and students' initial training phases before interacting with client's animals at VTH and in Ambulatory Clinics.

Tables 5.1.3 and 5.1.4 reflect the **dynamics of the VTH in allowing students to access an adequate number of companion animals and horses for training and skills acquisition**. This student exposure is recorded in the logbook.

Table 5.1.5 shows the positioning of VTH as a reference hospital in the Lisbon Metropolitan Area (2.871 million inhabitants) with a balanced rate between first opinion and referred cases both in companion animals and horses. **This allows students to contact a broad range of cases and clients**, ranging from primary health care consultations to rare and/or complex cases referred by other veterinarians. In the opposite scenario are the very high rates of ruminant and pig first opinion patients, reflecting the veterinary assistance protocols celebrated between FMV and livestock producers to safeguard suitable training of students in these animal species.

Visits to rabbit farms are not carried out because biosecurity conditions are very demanding and the best ones are in the Center-North of Portugal, 150 km from FMV.

5.6. Suggestions for improvement in Area 5

Modernizing animal resources and teaching materials of animal origin involves integrating advanced technologies, ethical considerations, and contemporary educational practices. Our future approach is to use digital and virtual tools, such as virtual dissection software, augmented reality (AR), virtual reality (VR), and interactive mobile apps, which allow for an immersive learning experience without the need for actual animal specimens. **The acquisition of some of these bioinformatic tools is already being considered** under the framework of PRRP.

Ethical and sustainable practices are also crucial, ensuring that any animal-derived materials are ethically sourced, and employing 3D printing to create accurate models of animal anatomy. The access to digital libraries with high-quality images, videos, and 3D models to further enhance learning will remain a priority. Our goal is to continue to incorporate new scientific advances, such as genomics, biotechnology, artificial intelligence, webinars, virtual labs, and digital assessments, ensuring that **the curriculum remains current and relevant**.







6. Learning resources



6. LEARNING RESOURCES

6.1. Learning resources strategy and procedures

6.1.1. General strategy on learning resources

Quality and modernity of learning resources is an FMV top concern, by keeping a permanent effort to maintain facilities and update equipment and other resources (e.g. clinical and labs consumables, books, journals), ensuring that students have adequate learning conditions and a VTH competitive with the best private hospitals.

Facilities - FMV was built (1997-1999) specifically for teaching and research in Veterinary Medicine, offering areas suitable in size and quality for enrolled students, including auditoriums, labs for practical classes and research, stables, specific rooms for Anatomy and Pathological Anatomy and a VTH.

Equipment - FMV is equipped with up-to-date equipment, especially in the VTH and research labs (see Area 4). FMV also displays adequate equipment for practical classes in labs, dummies and simulation materials in its Clinical Skills Training Centre, and enough resident animals for the second phase of training, guaranteeing the application of the principle "never the first time on a live animal".

6.1.2. How the procedures for access to and use of learning resources are taught to staff and students.

Access to and use of learning resources are taught to students through three convergent procedures: (1) the US **"Biomathematics, Computing and Documentation"**, **strategically placed at the 1st semester (1st year)**, provides training in access to electronic information; (2) the **Library and IT teams provide students personalized local or at distance training** on access and use of information resources, including configuration of their equipment (personal sessions, telephone aiding or electronic mail counselling; (3) **tutorials available at FMV and Library webpages** and on paper at the Library's Service Desk. The great majority of students present well-developed skills on the use of computers and electronic devices. Teachers and support staff receive regular e-mail information about new materials and have access to computer platforms for internal and external bibliographic research.

6.1.3. How and by whom the learning resources are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

The PC designates a full-time professor to be the Coordinator of the Library and Document Centre for a 4-year period. This professor works in close collaboration with the Librarian and the Presidents of Departments. Proposals for acquisitions are made and justified by the SPC of each US. The titles of journals or other periodicals are also proposed by teachers and researchers. **The updating of book editions included in the list of recommended bibliography of each US are proposed and grounded by the Librarian directly to the Management Council.** The acquisitions are communicated to staff and students through the Library's electronic webpage at the submenus "News" and "Bibliographic Novelties", and through paper support at the Service Desk.

Subscription of databases is done by ULisboa Rectorate, negotiating joint contracts for all schools, thus minimizing costs. Databases specific for FMV are proposed by the Library Coordinator to the Management Council. All **consumables and equipment needed for practical classes** are requested by the US regent, validated by the President of the Department and authorised for purchase by the Dean if duly justified and financial availability exists.

6.2. Library, IT facilities and accessibility to electronic learning resources

6.2.1. Library

Description of the main library of the Establishment

Staff and qualifications:	1 Librarian (fulltime, Graduation Degree and Master in Documentation and Information Sciences, Professional Technical Course of Library, Archive and Documentation), 1 Librarian Assistant (fulltime, 12 th grade Secondary School, Professional Technical Course of Library, Archive and Documentation), and 1 Librarian Technician (fulltime, 12 th grade Secondary School).
Opening hours and days:	Monday-Friday, 9.30 am to 6.30 pm.
Annual budget:	45,000 € (without salaries).
Facilities:	Building A, 1252 m ² , 8 rooms, including 2 large reading rooms, 1 computer consultation area with 24 terminals, 3 reserved offices for study groups, 1 reserved multimedia cabinet (videos and audio), and 1 free access area to periodicals, 150 seats.
Equipment:	16 desktop computers, 1 laptop, 58 connections (electrical outlets) available for laptops, digital monitor Signage 43”.
Software available for bibliographical search:	1 KOHA open-source Integrated Library System (ILS), 1 specific search platform EDS (EBSCO Discovery Search) allows to query all the ULisboa catalogues and most of the subscription databases at once and to retrieve bibliographic data of books (printed and e-books), theses, articles, journals (printed and electronic), 1 Research portal: Online Knowledge Library b-on, 1thesis and dissertation Repository. From the FMV network, many databases for bibliographical search are accessible as, for example, SPRINGER, Scopus, Web of science, Pubmed.

There are no subsidiary libraries.

6.2.2. IT facilities and the e-learning platform

FMV has an “IT Commission” composed of 4 teachers, The Executive Director and 1 IT technician, coordinated by a teacher appointed by the Dean. An IT outsourcing company coordinates and manages all aspects of hardware and software of the internal network and connections to external networks, maintenance and upgrade of computer equipment, peripherals and the institutional webpage, and provides support, information and training to FMV users.

FMV has two computer rooms, each with 15 desktop computers, allowing a practical class of 30 students to work in pairs, if necessary. All teachers', veterinarians', and researchers' offices are equipped with a desktop or a laptop computer with cable and wireless free Internet access. The same occurs in all lecture halls, classrooms and teaching laboratories. The VTH itself has 30 terminals. In total, the current FMV computer pool gathers 300 computers, managed daily by 3 computer technicians of the Help Desk Service (outsourcing company). VTH customers also have free wireless Internet access.

An e-learning platform (MOODLE) has been in use since 2009 to support communication between students and teachers, delivery of bibliographic and other learning resources, pedagogic e-learning tools, and students' self-assessment or quiz-type assessments. All staff (teaching, research, veterinarians and support) and students have free access to bibliographic research databases (Web of Science, Medline, EDS, Springer, Wiley, through the b-on).

IT facilities are also available at the Main Library through 24 terminals. Their maintenance and upgrade are carried out by the Help Desk Service. The Library team supports students in configuring, accessing and taking full advantage of their e-learning account in MOODLE. All software used in FMV has commercial licenses acquired either by the faculty or by ULisboa.



6.2.3. Accessibility to electronic learning resources

Students and staff have **free access to all FMV electronic resources** through the **EDUROAM** (Education Roaming) wireless network within FMV. **Outside the institution**, all accesses are provided through a **Virtual Private Network (VPN)**. Paper and electronic guidebooks are available on the website to help students and staff with the configuration of their VPN access.

6.3. Access to learning resources, internet, internal study resources, and facilities and equipment for the development of procedural skills

6.3.1. Books and periodicals

Number of veterinary books and periodicals:	50,339 bibliographic records (books, monographs, thesis, dissertations, periodicals), and 227 periodical titles, from which 12 have a current subscription.
Number of veterinary e-books and e-periodicals:	4 e-books, 3 available at the platform EDS/b-on, 256 active full-text journals available at the platform Veterinary Source.
Number of other e-books and e-periodicals:	It is impossible to quantify data access to databases available online as, for example, SPRINGER, 278 periodicals of Veterinary Medicine are available through the b-on platform.

6.3.2. Available electronic information and e-learning courses, and their role in supporting student learning and teaching in the core curriculum

Various three-hour **workshops and short courses are provided by the University e-Learning Lab**, available to students, teachers and anyone belonging to the academy. These workshops are available in five categories: MOODLE Platform, e-Learning Pedagogy, Massive Open Online Courses (MOOC), e-Learning support tools and other tools.

6.3.3. Organisation and supervision of the skill labs

The Clinical Skills Training Centre (CSTC), an infrastructure to support IMVM practical teaching, was inaugurated in 2016-2017 and has been expanding the clinical skills training offered to students. Its objectives are as follows:

- To support teaching in the pre-clinical and clinical areas, under technical supervision either in a classroom context or autonomously,
- Ensuring that the first phases of clinical training are not carried out on live animals, following the principle of “never the first time on a live animal”,
- Reducing the number of live animals used in teaching according to the 3Rs principles - Reduction, Refinement, Replacement - using cadavers, dummies, and models.

The CSTC has three areas:

- Area 1A - Pharmacology - room H0.13A, on Building H, in a space of 90 m²,
- Area 1B - Medical Propaedeutics, Anaesthesiology and Surgical Semiology - room H0.13B, on Building H, in a space of 100 m²,
- Area 2 - Reproduction and Obstetrics, in room G0.1, on Building G, in a space of 73 m²,
- Area 3 - Experimental Surgery, in room D1.17, on floor 1 of Building D, in a space of around 70 m².

Until 2023-2024, the CSTC has been exclusively used in the context of classes or assessments of the US clinics, in which teachers demonstrate and students practise during class time, under the teacher's supervision.

In the 2024-2025 academic year, with funding support from PRRP, allowing improvement of rooms, acquisition of equipment and hiring a nurse to monitor and supervise students, CSTC will begin its second phase, allowing for the autonomous training of students. A weekly timetable will be defined for each area, where students will be able to access and practice autonomously the procedures available at each station, which they have already acknowledged in classes. Training stations will have an instruction manual, printed or in digital format (accessed by a QR code), describing procedures that can be trained on each piece of equipment, under the supervision of a technician and/or volunteer teaching student (VTS). The list of available stations and equipment available in each area is described in Appendix 11. A registration record will identify the user, day and time of entry and exit.

6.4. Comments on Area 6

The use of e-learning was fostered by the experience of distance learning during COVID-19, conveying very useful working and communication routines that save travelling and facilitate teaching and meetings. This will be explored and developed in the new curriculum.

Funding from PRRP will be truly decisive in the modernization of learning resources, teaching conditions and methodologies. It is planned:

- a) The construction of 3 active learning rooms that can be moulded to different pedagogical models and a unit for recovery of organic waste produced by resident animals and the VTH,
- b) The acquisition of:
 - i. nearly 30 new dummies and other simulation and training equipment,
 - ii. audio-visual equipment (interactive whiteboards, binocular microscopes, magnifying glasses, projectors, screens, filming and transmission systems for monitors) and learning platforms (3D Anatomy & Virtual Dissection Platform - "Anatamage"),
 - iii. clinical equipment for the VTH.

6.5. Suggestions for improvement

The electronic learning management system environment needs further improvement and user-friendly development, namely taking into consideration portable terminals like smartphones. Investing more in and taking advantage of the rapid development and accessibility of e-learning modules should be another priority.

Hiring another person would also allow us to **extend the Library's opening period.**







7. STUDENT ADMISSION, PROGRESSION AND WELFARE

7.1. How the educational programme is advertised to prospective students

The programme in Veterinary Medicine is well known among potential candidates since it is the oldest in Portugal, the first to be accredited by EAEVE, and Veterinary Medicine is a very popular profession amongst animal-loving youngsters. **Beyond information on Erasmus+ on the FMV website, the educational programme is advertised through the following means:**

- Press:** annual special issues about the offer of Graduation Courses published in the major weekly (“Expresso”) and daily (“Público”) newspapers in Portugal,
- Mass events organized or participated by ULisboa in Portugal:** “Futurália” (largest national education and training fair, 64,000 visitors in 2024), “Descobre a ULisboa” (Discover ULisboa), “Verão na ULisboa” (Summer at ULisboa, a one-week programme takes place in FMV aimed at high school students from the 10th, 11th and 12th grades, to make them aware of IMVM characteristics and FMV’s facilities),
- Overseas mass events participated by ULisboa:** “Salão do Estudante” (Student Hall), one of the main international fairs of higher education in Latin America and the oldest education fair in Brazil, and other initiatives namely in Portuguese-speaking African countries or high potential markets for international students (China),
- Events organized by FMV:** FMV’s open day (students and parents), visits requested by secondary schools,
- Other mass events:** PetFestival (animal owners/ general public, 20,000 visitors), for disclosure of FMV and VTH services in particular,
- GAP YEAR Portugal:** 1/2 students, 2 weeks at FMV, attending classes.

7.2. Resources available for staff, buildings, equipment, healthy and diseased animals, and materials of animal origin

The number of students admitted was calculated according to the size of facilities and equipment, number of teachers, auxiliary staff, animals and consumables necessary to ensure quality learning, framed by the FMV budget and guided by international recommendations, namely the Day One Competences of ESEVT. The following tables show some of the numbers that demonstrate this adequacy.

Table 7.2.1. Number of new veterinary students admitted

Type of students	2022-23	2021-22	2020-21	Mean
Standard students	125	133	139	132.3
Full fee students	0	1	1	0.67
Total	125	134	140	133

Table 7.2.2. Number of veterinary undergraduate students registered

Year of programme	2022-23	2021-22	2020-21	Mean
First year	116	123	126	121.7
Second year	106	113	106	108.3
Third year	109	108	122	113.0
Fourth year	117	120	134	123.7
Fifth year	141	152	145	146.0
Total (without final traineeship/EPT)	589	616	633	612.7
Sixth year (final traineeship / EPT)	248	231	220	233.0
Total including EPT	837	847	853	845.7

**Table 7.2.3. Number of veterinary students graduating annually**

Type of students	2022-23	2021-22	2020-21	Mean
Standard students	112	97	99	102.7
Full fee students	0	0	0	0
Total	112	97	99	102.7

Table 7.2.4. Average duration of veterinary studies

Duration	% students graduated on 2022-23	% students graduated on 2021-22	% students graduated on 2020-21	Mean
+ 0**	20.54% (23)	34.02% (33)	52.53% (52)	36
+ 1 year	59.82% (67)	37.11% (36)	27.27% (27)	43
+ 2 years	7.14% (8)	12.37% (12)	14.14% (14)	11
+ 3 years or more	12.50% (14)	16.50% (16)	6.06% (6)	12

** The total duration of the studies is 6 years

Table 7.2.5. Number of postgraduate students registered at the Establishment

Programmes	2022-23	2021-22	2020-21	Mean
Master in Food Safety	53	48	37	46.0
Master in Zootechnical Engineering	17	16	15	16.0
Master in Microbiology	21	16	18	18,3
Interns	6	9	9	8.00
Residents	8	5	3	5.33
PhD students	57	42	40	46.0

7.3. Admission procedures

7.3.1. Admission procedures for standard students

The selection process for IMVM candidates is fully accomplished by the General Directorate of Higher Education (Ministry of Education, Science and Innovation), through a **National Higher Education Access Contest**. Students can apply for a higher education programme when they meet the following criteria:

- Completed secondary education (holders of 12th year), or a legally equivalent qualification,
- Approval at national exams required by the higher education institution for that specific programme (e.g. Biology and Chemistry for Veterinary Medicine) with a classification equal to or higher than the minimum required for that programme,
- Application rating equal to or higher than the minimum value set for that programme by the higher education institution.

FMV only participates in this selection process by defining:

- Numerus clausus*/year (109),
- National exams that candidates must accomplish (Biology and Geology and Physics and Chemistry),
- Weighting applied to the final classification of secondary education (50%) and the grades obtained on national exams (50%),
- Minimum grades in national exams (12 in 20) and final result (12 in 20) obtained through the application of the formula used to determine the final admission grade,
- Pre-requisite to access the IMVM (Group B - Interpersonal Communication - absence of psychic, sensory or motor deficiencies that seriously interfere with the functional capacity and of interpersonal communication to the point of preventing learning).



All these criteria and procedures, including the appeal processes, are **advertised on FMV and the General Directorate of Higher Education websites**. As a result of these procedures, **the classification of the last student enrolled in IMVM was 175.8 (out of 200) in 2021-2022, 169.5 in 2022-2023 and 163.5 in 2023-2024, revealing the high performance of the IMVM students**. Since *numerus clausus* was first established in 1976, **all vacancies have been filled every year**. Beyond this general access, there are a few extra vacancies for special application regimes.

7.3.2. Admission procedures for full-fee students

All bachelor's and integrated master's degree students pay the governmentally established tuition fee, currently 697€ per year. Although specific legislation was settled in 2014 for the admission of international students with full fees, the educational programmes of Medicine, Dental Medicine and Veterinary Medicine were not allowed by law to enrol this type of students, until 2021-2022. At this time, a change in legislation allowed Portuguese Veterinary Education Establishments to enrol international students charging a tuition full-fee, which represent the real costs of training per year. FMV has set a **full-fee of 12,500€/year** and opened up 6 vacancies, which have not been filled. There are currently 3 international students enrolled (Brazilian). The application requirements are the same as for Portuguese or EU students, plus written and spoken comprehension of Portuguese language (B1 level). Candidates are ranked using a formula similar to that of Portuguese students, which includes the final grade in secondary education and the final grade in the Biology and Chemistry final exams.

7.3.3. How FMV adapts the number of admitted students to the available educational resources

The number of students admitted/year has changed over time, with an **increase in the period from 2012-2013 to 2013-2014, followed by a steady decline since 2014-2015 until 2021-2022 (113 vacancies plus 6 full-fee) that remains to the present**. The former increase in students' number was motivated by financial constraints and by the urgent need at the time to hire more human resources, purchase additional minibuses for Ambulatory Clinics and extra-mural visits, and acquire more resident animals (in particular horses) and further biological material for training (cadavers, organs) or dummies. This was especially relevant in VTH, because the number of patients significantly increased during this period.

Student's safety and welfare have always been safeguarded. Upon decreasing students' number, the priority is to improve the quality of teaching, taking advantage of the rise in teachers, veterinarians, and nurses' ratio, by reducing group size and by offering more student-centred approaches such as PBL and CBL.

7.3.4. Prospective number of new students admitted by the VEE for the next 3 academic years

The current number of vacancies is well suited to the teaching areas, VTH and human resources. Thus, **FMV aims to keep the present number of undergraduate students to maintain the quality of their education**. For this purpose, **the number of vacancies for new students was reduced over the last years, from 128 in 2016-2017 to 113 in 2021-2022, which has been maintained and will be kept for the next 3 academic years**.

7.4. Policies and procedures dedicated to applicants with disabilities

As stated above (7.3.1), a pre-requisite is required for candidates to access the IMVM (Group B - Interpersonal Communication - absence of psychic, sensory or motor deficiencies that seriously interfere with the functional capacity and of interpersonal communication to the point of preventing learning), which restrain the entry of candidates with serious disabilities. However,



during the programme, due to illness or accidents, occasionally some students develop some degree of disability for whom FMV seeks to find supplementary support.

All buildings comply with accessibility requirements for disabled individuals, such as entrance accessible to wheelchair users and lecture halls, library, common areas, canteens, cafeterias, bathrooms, student dormitories, recreational and sports facilities accessible to physically disabled individuals, through ramps or lifts, as well as accessible parking. Recently, some sanitary facilities were remodelled to enable their use by disabled individuals. An emergency evacuation plan for these individuals with disabilities is available.

7.5. Academic progression

7.5.1. The progression criteria and procedures for all students

The **transition between curricular years and enrolment in the curricular traineeship** is described in article 6 of IMVM's Regulation that, as a main rule, stipulates that students with overdue US must enrol first in those curricular units and then in the subsequent curricular units of the Study Plan, not exceeding a total of 80 ECTS, with the exception of 1st year students who can only enrol in the corresponding 60 ECTS.

The **access to the curricular traineeship** is restricted to students who have passed all the US of the first 10 semesters and have the logbook completely filled. Exceptionally, students who have not obtained approval in US that correspond to a maximum of 10 ECTS can start their curricular traineeship if those US do not belong to the Scientific Area of the curricular traineeship.

For more details see IMVM's Regulation (Appendix 8).

7.5.2. The remediation and support for students who do not perform adequately

Students who do not perform adequately are identified and monitored by the PC. Guiding is given mainly regarding methods of study, needs to improve previous knowledge, relational thinking and reasoning, and time management during exam periods. Their FMV “godmother” or “godfather”¹ is also committed to this coaching scheme.

In 2018, the **Student Support Group (SSG-GAPE)** was created by the PC and is composed of teachers from PC and other co-opted, and other volunteers. This group's mission is to address the physical, emotional needs and well-being of students. Created in the same year, **the Mentors Group (MG)** made up of volunteer IMVM students from 2nd to 5th year and Veterinary Sciences PhD students, became the first support structure for 1st year students, under the supervision of GAPE teachers, who work as Tutors. Nowadays, the MG has 100 students, a number that clearly demonstrates the students' adherence to this initiative and their generosity towards their younger colleagues.

Psychological support is provided by ULisboa at CEDAR (near FMV) or at the Medical Services of University Stadium. This support is currently in expansion with the collaboration of the Students' Association and the financial support of FMV. A PC authorization may allow to take exams in September during the Special Exams Period, until 20 ECTS.

In addition, students are directed to fill out a **logbook** to self-support their hands-on skills development and studies since the 2nd year of the IMVM. The logbook proved to be a valid preventive mechanism to reduce academic failure, mainly amongst less proactive students.

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

All criteria, rules, and procedures are described in **IMVM's Regulation** (Appendix 8) and are advertised to students in different key moments: (1) permanently on the **webpage**, submenu

¹ An older student assigned in their 1st Year, 1st Semester as their personal mentor.



"Study/IMVM", (2) at their first registration in FMV all new students receive a brochure with specific instructions to consult the academic degree regulations and to read the "**Student Guide**", (3) PC request the **SPC of each US to communicate to students at the first theoretical class** the assessment methodologies that will be followed, as well as general exclusion and appeal procedures.

7.5.4. The rate and main causes of attrition

A complex set of personal, social, and institutional factors may promote attritions leading to lengthened graduation times or even withdrawals. Students' main causes of attrition recorded by PC are: (1) the **content of the programme not matching students' expectations**, namely among those that their first study option was Human Medicine; (2) **feeling of injustice with exam results**; (3) **economic problems** due to parents' unemployment, which in some cases forces students to work in part-time; (4) **family disturbances**, especially divorces and death of relatives; (5) **persistent depression disorders**.

In 2019-2022, the **annual average withdrawal rate among IMVM students was 4.39%**, with ≈95% of these dropouts occurring in the 1st and 2nd year due to students' decision to return to secondary school to repeat national exams to retry entering Human Medicine programmes.

Another related indicator is the average time needed to complete the programme, which was of **6.9 years** from 2019 to 2022 (the last 2-3 months correspond to the period between submitting the master's thesis and carrying out its public defence). This mainly reflects student's strategy to lengthen their curricular 6-month traineeship into a 12-month program, converting a 5.5 years integrated master's degree into a 6,5-year training period, either because they want to make the most of this opportunity to improve their skills or because they need to become more self-confident to fight for a job in a very competitive labour market. However, **41% of students accomplish the program within 6 years**.

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

As stated above, **admission procedures and admission criteria are established by national legislation and accomplished by the General Directorate of Higher Education (Ministry of Education, Science and Innovation)**. FMV only contributes to this process by **defining**: the number of vacancies, national exams that candidates must overcome and weighting applied to final grades obtained in secondary education and national exams. These options are discussed in SC, taking into account available educational resources, biosecurity and welfare requirements, and the budget estimate for the following year, and proposed by the Dean to the ScC for final approval. **Following approval, these vacancies, criteria and procedures are advertised** as described above **and communicated internally to staff and students**.

Several services have been created and are made available to students by ULisboa (welfare services, medical assistance, financial aid and scholarships, sports and cultural activities, etc.), **by PC** (pedagogic issues, day-to-day coaching to students, etc.), **Academic Office** (administrative procedures), **Mobility Office** (organization of ERASMUS student arrival and leaving procedures; advise on language courses, assistance in accommodation), Mentors Group (sessions on time management and welfare and wellbeing in exams' period) **and FMV Students' Association** (organization of cultural, sportive and out-of-class activities, welcoming events, academic traditions, etc.). **All these services are communicated through the websites** (www.ulisboa.pt and www.fmv.ulisboa.pt) **and social networks** (Facebook and Instagram pages as well as WhatsApp groups).



7.6. The exclusion and appeal processes

National legislation establishes the **criteria for student exclusion**, the act by which a student's enrolment ceases after eight registrations. However, one year after that exclusion the student can apply for a readmission, which has no quantitative limitations, but this mechanism can only be used twice.

The **appeal procedures to US exam results** are fully explained in article 10 of “Regulation for the Assessment of Knowledge and Competencies and Admission to the Final Exam of the 1st, 2nd, and 3rd Study Cycles at FMV-Lisboa” (Appendix 12). Summing up, students who fail more than three times on a US exam may, upon request addressed to PC President, appeal for the constitution of a special jury to repeat that exam. The PC President analyse each application together with the Study Coordinator of the respective scientific area and SC President. The decision must be communicated to the applicant within a maximum of ten days. In addition to the previously appointed examination jury, this special jury will also integrate the Coordinator of Studies of the scientific area of the US and a teacher member of PC appointed by PC President.

7.7. Services available for students

The Academic Office, in close collaboration with PC and SC, manages student enrolment and annual registration and teaching administration. Mentoring and tutoring are also in place for all students by the Student Support Group (SSG) and the Mentors' Group (MG), as explained above (7.5.2). During the EPT (11th semester) the Traineeship Committee and supervisors follow the student's performance.

Career opportunities guidance sessions are promoted once per semester by the Students' Association initiative “Veterinarian, and now?”, in which they invite professionals and companies from different Veterinary Sciences areas to share their experience and views on labour market trends. The **new FMV Alumni Mentoring Program**, with the participation of FMV Alumni, aims to assist IMVM 6th-year students in their transition to professional careers, providing guidance and helping establish professional networks. In this FMV Alumni Mentoring Program, FMV Alumni with at least 3 years of professional experience serve as mentors, sharing knowledge and experiences while supporting their mentees in various areas. This includes structuring CVs and motivation letters, preparing job interviews, setting professional goals and exploring career options, considering postgraduate studies, Residency and Diplomate programs, assisting with research grant applications, and enhancing interpersonal communication skills. The program is intended to start in October 2024 and run for four months, during which mentors and mentees would connect for at least four hours to share experiences.

Listening and counselling are mainly PC tasks, and since 2018 with SSG and MG, students have applied through emails requesting a meeting. Counselling is mainly focussed upon the difficulty in dealing with the pressure and expectations of exam periods, perception of injustice with exam results, coaching for low-performing students, vocational skills, and mentorship for life, since PC and MG, each promote working sessions every year concerning EPT and master dissertation (for 4th year students) and veterinary careers/profession (for every student), respectively. The Mobility Office also participates in student's advice, namely concerning opportunities in Erasmus+ Program and student exchange programs. **This work is done in partnership with the Students Association** that has a representative to support the physical, emotional and welfare needs of students.

Assistance in case of illness, impairment and disability is warranted by ULisboa Health Centre, including the Office of Psychological Support, located either in the Ajuda Campus on the premises of CEDAR (the unit with the mission of promoting Health and Sport within ULisboa) or at Medical Services of University Stadium. **The protection mechanisms for students with serious episodes of disease or impairments are the following:** (1) students may enrol in part-time to adequate their study load to their illness or impairment, with a proportional reduction of



fees; (2) students may suspend their academic activity without losing their vacancy and without paying any tuition fees for 1 year.

Clubs and organisations are managed by the Students' Association. Students are organised in their Association, which legally represents them and works to defend their rights and well-being, organising and stimulating numerous professional, scientific, sports, cultural and leisure activities and events. The association has a very close relationship with the Dean and the PC and has the full support of FMV. The FMV Students' Association has a strong tradition and history, being the oldest in Lisbon. It hosts the following nuclei: Medicine and conservation of wild and exotic species (FAUNA), Buiatrics, Equidae; Bullfighting; Academic tradition (GOTA), Vetuna (musical group), Sevillian dances, Group of friends of faculty animals (dogs and horses), plus several sports teams such as football, futsal, volleyball, and basketball.

There are several **mechanisms for the resolution of student grievances**, from the **internal bodies of FMV**, namely the PC and the Dean, to the **ULisboa Student Ombudsman** (<https://www.ulisboa.pt/en/info/student-ombudsman-0>), which is an independent body whose function is to defend and promote the rights and interests of students within the University (see 1.4.3). Students' rights and duties are well described in ULisboa's main documents, such as the **Disciplinary Students Rules and Regulations**, the **Code of Conduct and Good Practice** and the **ULisboa Charter of Rights and Guarantees** (Appendix 3), already explained above (1.4.3). At FMV, **any formal complaint from students triggers grounds for opening an investigation process** which, if sufficiently serious reasons are found, may give rise to disciplinary proceedings.

7.8. Comments on Area 7

Comments have been added in each of the previous information points presented above and due to document length constraints are not repeated here.

7.9. Suggestions for improvement

At the meeting of the **Advisory Board**, **external members suggested including a vocational test in the criteria for access to IMVM**. This suggestion will deserve FMV's best attention. However, **according to legislation, this component would have a low weight in the final grading**, being also important to mention that vocational tests are very complex to design and time-consuming, and generally IMVM has 3 to 4 hundred candidates each year.

Increase counselling and psychological support for several reasons, namely because COVID pandemic consequences of social isolation are fading away but still exist.







8. Student assessment



8. STUDENT ASSESSMENT

8.1. Structure responsible for the assessment strategy

According to the FMV Statutes, the PC is the body responsible for defining and pursuing pedagogical policies.

8.1.1. Global student's assessment strategy

National legislation establishes three examination periods: Normal, Resit, and Special. These examination periods are defined by the PC and included in the Academic Calendar. Students play an active role in setting the exam schedule and sequence for each period. Exam calendars are proposed by student year delegates, discussed with teachers, and then submitted to PC by the student year representative. The PC then analyses and approves the final version of the exam calendars for all periods.

The Normal and Resit periods occur at the end of each semester. The Special period takes place during the first two weeks of September, according to the schedule announced in the Academic Calendar. There is no limitation on the number of exams students can take during the Normal period. During the Resit period, students can take exams for courses in which they have not yet achieved a passing grade, also with no limit on the number of ECTS credits. The Special period provides a third opportunity for groups of students with special statuses as defined by Portuguese legislation or ULisboa regulations. These groups include working students, final-year students, on international mobility programs, members of ScC and PC, those on maternity or paternity leave, high-performance athletes, and those involved in FMV-ULisboa volunteering programs (Mentorship, Dog and Horse Care Support, Volunteer Teaching Assistant). The limit of 20 ECTS applies to the Special period, except for final-year students who may take exams up to 30 ECTS credits. Working students are exempt from these restrictions due to national legislation.

Examination panels for each US are approved by SC, based on Department proposals. These panels are chaired by SPC and composed of a minimum of three teachers.

To avoid disrupting students' focus and learning flow, no examinations on theoretical topics are held during the regular class period. Consequently, the theoretical component of the teaching-learning model is assessed exclusively through a final exam.

Practical exams are scheduled either before or after the theoretical exam, based on criteria set by the US' SPC, and communicated to students in advance. These exams are typically oral and involve the demonstration of skills, as well as deductive, inductive, and abductive reasoning. Some US also conduct written exams addressing the practical aspects of their training. The practical component may also be assessed through quizzes at the end of each topic or through additional evaluation elements such as reports, essays, clinical case descriptions, and individual or group presentations. These interim practical assessments occur throughout the semester and can exempt students from certain topics listed for the final practical exam.

The acquisition of practical skills by students is continuously documented through daily activities recorded in the logbook. Although these activities are not formally graded, they imply successful task completion. Practical skills are formally evaluated only through final practical exams.

8.1.2. Specific methodologies for assessing theoretical knowledge, pre-clinical practical skills, clinical practical skills

Theoretical knowledge is evaluated in final written exams. Generally, exams are composed of several sections and different types of questions: (i) true or false, multiple-choice, short-answers, (ii) open-ended answers with limited writing space, (iii) 1-2 pages essays. The aim is to ensure



that students develop good writing skills, and prevent them from being mostly evaluated by true-false or multiple-choice questions due to easy scoring.

Therefore, in Part 1 of the written exam, true-false, multiple choice or short-answer questions are used to test recall and comprehension of simple logic or understanding. Wrong answers may or may not be subject to a penalty. Multiple-choice questions usually involve a phrase followed by three to five options. Short-answer questions generally require students to remember and reproduce knowledge rather than interpretation. The length of short answers on the IMVM is quite flexible. It ranges from one word to a phrase, a sentence, or a paragraph. Then, **in Part 2 of the written exam, open-ended questions with limited writing space or 1-2 page essays** are frequently used to test the student's ability to read or interpret complex sentences or understand and describe complex problems. Open-ended questions are more adequate to assess students' reasoning ability and their level of achievement, but the most important benefit is to promote deep learning.

The acquisition of pre-clinical skills is assessed daily, both in conventional practical classes and at VTH, through the **logbook and by a practical final exam**. **The acquisition of clinical competences is monitored and evaluated daily**, during clinical rotations at VTH and in Ambulatory Clinics, where teaching staff and veterinarians record in the logbook of each student the successful accomplishment of clinical competencies.

Students are **engaged in seminars, team works, paper discussion and journal clubs** since the 2nd year, promoting **student proactivity, team building, research and communication skills, towards evidence-based veterinary medicine**. From the 3rd year on, students are engaged in **hospital activities**, in small groups, where interaction with VTH veterinarians and nurses promote the first experience with work pressure, and ethics are witnessed, learned and comprehended. This is important as a way to induce a growing sense of self-assurance while facing the animal, the tutor/owner and the whole work team, always willing to overcome any deficiency after criticisms coming from the tutor/owner or the senior members of the team.

Assessment of **soft skills**, including **communication skills, teamwork, dealing with pressure, positive mental attitude, flexibility, time management, self-confidence, and dealing with criticism**, is integrated into various aspects of the curriculum. Communication and teamwork skills are practiced early in the study program through activities such as microteaching, peer tutoring, and group assignments. These skills are further developed and assessed through assignments like video presentations, conversations with animal owners, and participation in clinical rotations. Additionally, self-reflection and detailed feedback from instructors and peers are provided to some US to help students improve their soft skills.

8.2. Assessment tasks and grading criteria

8.2.1. Processes for ensuring the advertising and transparency of the assessment criteria/procedures

The **examination periods are announced in July of the previous academic year**. The exam calendar of Normal and Resit Periods is worked out by PC and disclosed in September in the faculty website and MOODLE, and posted in a notice board next to the Academic Office. The Special Period calendar of exams is published in July and covers US of 1st and 2nd semesters. The Normal Period of 1st semester for compulsory US takes place in January, and the Resit Period in February. The Normal Period of 2nd semester for compulsory US takes place in June, and the Resit Period in July. The evaluation of elective US follows another scheme because as they are clustered in seven consecutive days, their evaluation takes place on the last day of classes. The assessment of 1st semester elective US takes place at the end of the 2nd week of December. The assessment of 2nd semester elective US takes place at the end of the 3rd week of February.



8.2.2. Processes for awarding grades, including explicit requirements for barrier assessments

Only those students who have **attended at least 80% of US practical and theoretical-practical classes** are admitted to the final exam. For this purpose, **attendance registration in practical and theoretical-practical classes is compulsory**. In all written and oral examinations, the minimum approval grade is **10 on a scale of 0 to 20**. Whenever requested to students, additional assessment elements (reports, essays, descriptions of clinical cases) should have a minimum weight of 20% of the final mark. **The final classification is the weighted average of results obtained in the theoretical exam, practical exam, and any other elements required for evaluation**. The coefficients to weight each exam are presented to students in the first theoretical class of each US and are stated in the short syllabus of each US on FMV's website.

8.2.3. Processes for providing to students a feedback post-assessment and guidance for requested improvement

Classifications obtained in the Normal Period must be published on a **provisional list** in MOODLE, within a maximum period of 8 working days. The grades obtained in 2nd semester Resit Period should be available on a provisional list in MOODLE until the last working day of July. In the case of practical oral exams, the Regent informs the student if he succeeded or not and may publish a provisional list in MOODLE, at the end of each day of practical exams.

Students have the **right to consult their written examinations** in the three days following the publication of provisional results, at a time defined and publicized by Regent. During these sessions, the Regent gives guidance for requested improvement that may involve supervised self-learning or, for instance, extra clinical training at VTH or Ambulatory Clinics, during evenings, weekends, and holidays. Finally, up to 72 hours after the end of the consultation period, **the SPC must enter the final classifications in the academic electronic system (FenixEdu)**, print the list, have it signed by teachers, and send it to the Academic Office.

8.2.4. Appeal processes against assessment outcomes

If after consulting their written exam, the student continues to disagree with the grade, she/he may present a **complaint to the PC President**, who, together with the Coordinator of Studies of the scientific area and SC President, will analyse the complaint and inform their decision within a maximum of 10 days. Moreover, students who have failed more than three times to a US may, upon request addressed to the PC President, appeal for the constitution of a **Special Jury** to repeat that exam. The PC President analyses each application together with the Study Coordinator of the respective scientific area and the SC President. The decision must be communicated to the applicant within a maximum of 10 days. In addition to the previously appointed examination panel, the Special Jury includes the Coordinator of Studies of the scientific area and a member of PC of that Scientific Area, appointed by the PC President. The Special Jury is approved by SC and the examination is carried out on an agreed date or during the official exam periods.

8.3. Assessment strategy management

8.3.1. How and by whom the student's assessment strategy is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

FMV statutes assign to PC the responsibility for the guidance of the pedagogic policy of the faculty, namely the elaboration and evaluation of guidelines, methods and results of teaching activities, ensuring the smooth running of the programmes, their quality and relevance for career prospects. The overall student assessment strategy is discussed first in each US by teaching staff, then at departmental level where it is structured by the Study Coordinator, and finally by PC and SC. It is the competence of PC to ensure the existence of a fair and rigorous student assessment system of knowledge and competences, capable of guiding the study and the training of students



to the achievement of the programmes general and specific learning objectives. In IMVM, the diversity and novelty of the global student assessment system should ensure the achievement of ESEVT Day One Competences.

The implementation and monitoring of the student assessment system of knowledge and competences is a task of PC, which requests from Academic Office, at the end of each semester, the indicators of US (approval and failure rates, average grades of theoretical and practical exams, etc.). These indicators are then discussed and analysed within the PC. Deviant cases are discussed with SPC and the Coordinator of Studies. Remedial measures are decided, implemented, and monitored in the following academic year. A trio consisting of 1 teacher member of PC, 1 student member of PC, and the Student Delegate of the US, monitors the implementation and efficacy of the new policies, which are revised annually by PC. The Scientific Committee of IMVM is informed of these situations, the corrective measures that were implemented and the results obtained.

8.3.2. The link between learning outcomes and assessment design

The linkage between learning outcomes and assessment design results from collaboration among faculty members, which ensures the establishment of clear learning outcomes for each US curriculum, and the selection of appropriate assessment methods.

For **theoretical knowledge**, assessment methods such as written examinations and oral presentations evaluate comprehension, critical thinking skills, and the application of theoretical concepts to practical scenarios. These assessments are meticulously structured to encompass a variety of cognitive levels, ranging from simple recall to higher-order analysis and synthesis.

The **assessment of practical skills** encompasses diverse methods, including oral examinations, laboratory sessions, and clinical rotations, reflecting an emphasis on real-world application. These assessments track the progression of student learning, commencing with foundational skills and advancing to tasks demanding higher levels of proficiency and independence.

Continuous feedback mechanisms ensure alignment between learning outcomes and assessment strategies. Student surveys always incorporate inquiries regarding the assessment process. This approach reflects a commitment to quality assurance and continuous improvement, as evidenced by the PC monitoring activities to assess quality, alignment of assessment methods to match learning outcomes, and cyclical review of assessment matrices.

8.4. Student achievement of learning objectives

8.4.1. System to certify student achievement of learning outcomes

The certifying system includes, in the first place, **the fulfilment of the 1st to the 11th semester subjects**, after being approved with a minimal mark of 10 (out of 20) in each US.

The second one relies on the **logbook**, as a way of attesting the learning of a technique, procedure, competence, being checked by the teacher, veterinarian, or nurse, according to the task. Presently, the paper version was replaced by an online App Logbook (Appendix 13), which besides confirming competences, in the future will allow to rank the way the students performed.

The last way of certifying scholar achievements comes from the **EPT final training, master dissertation** writing and quality of oral presentation and discussion.

8.4.2. Strategy to encourage students to take an active part in the learning process

Fostering **active student participation in the learning process** is central to FMV's educational approach. One avenue through which this is achieved is by offering a diverse range of **elective UC**, available from the third year onwards, allowing students **to tailor their curriculum** in alignment with their interests and career aspirations. These electives not only empower students



to take ownership of their academic journey but also encourage them to explore specialized areas of study.

Additionally, the completion of the **logbook catalyzes proactive engagement**. By documenting their daily activities and reflecting on their learning experiences, students are prompted to actively seek out and participate in various educational opportunities, both within and outside the classroom.

Furthermore, **clinical rotations** gradually introduce the concept of student-led clinics. Through structured learning pathways, students are provided with the opportunity to take on increasing levels of responsibility, thereby fostering leadership skills and promoting active participation in clinical settings.

The commitment to fostering a **culture of collaboration and active participation among students** is exemplified by the introduction of peer tutoring during practical training. This initiative allows students who excel in specific subjects and after approval from the PC, to offer assistance to their peers, further enriching the learning experience and promoting a sense of community within the student body.

8.5. Assessment methodology to ensure that every graduate has achieved the minimum level of competence, as prescribed in the ESEVT Day One Competences

The IMVM study plan is designed to ensure that all FMV graduates have the knowledge and skills to accomplish the ESEVT Day One Competences. To cope with specific Clinical Sciences ESEVT Day One Competences, each clinical US specifies which preclinical competences students should handle before entering their classes. The same applies to each preclinical US in relation to the basic US of the first two years of IMVM. This ongoing dynamic of competency learning is discussed and applied at departmental level, and it is the responsibility of Study Coordinators of the Animal Health and Clinical scientific areas to monitor the syllabus and evaluation methods in order to achieve these objectives.

With regard to the development and assessment of specific competences of the scientific areas of Animal Health, Animal Production, and Food Safety, required by the ESEVT Day One Competences, **inter-departmental work is carried out, evaluated, and upgraded annually by the Study Coordinators, to apply the “One Health” concept** as an anchor of the teaching-learning model. Student assessment makes use of numerous alternatives, from individual oral practical exams in the laboratory, to final written theoretical-practical exams, to individual or group essays, writing reports and technical opinions, presenting short communications based on bibliographic research in simulated international congress formats, to case-based assessment or computer-based assessment.

Concerning the assessment of Basic Sciences ESEVT Day One Competences, its main focus is to evaluate students’ knowledge of the structure, function and behaviour of animals and their physiological and welfare needs. This multi-step knowledge and competence development is planned at the departmental level. It is the responsibility of the Study Coordinator for Basic Sciences to monitor the various syllabus and their evaluation methods, to reach these aims, and to promote inter-US interactions and coordination. As the most frequent teaching-learning method in the 1st and 2nd year is based on lectures, laboratory, and non-clinical work, this scenario is reflected on the ESEVT Day One Competences assessment, relying predominantly on final written theoretical exams and individual oral practical exams in laboratories and dissection rooms. However, with the agreement and supervision of the Study Coordinator and PC, in some strategic US students are already fully or partially evaluated by e-learning methods, and by critical reading of scientific papers, written reports and summaries, and individual or group essays.

8.6. Comments on Area 8

The **fairness and accuracy** of FMV's student assessment system for knowledge and competences has significantly improved over the years, now reaching a high standard. While it is true that IMVM exams span a considerable portion of the academic year (4.5 months - January, February, June, July, and the first fortnight of September), this timeframe allows teachers ample time to conduct practical individual exams, which are among the most effective methods for assessing the acquisition of pre-clinical and clinical skills.

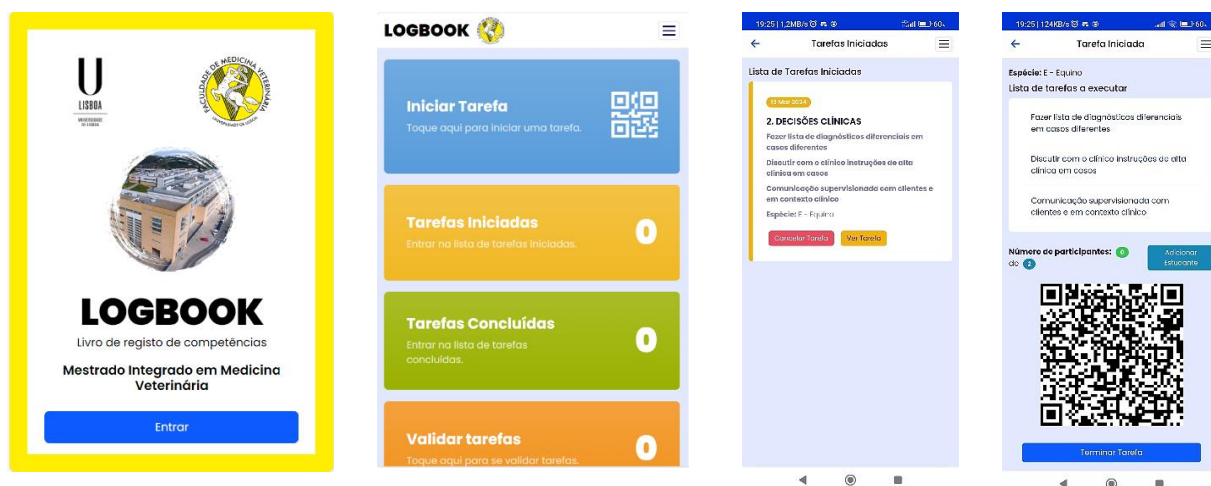
This assessment system offers each student a dual opportunity to achieve approval in a US, and the advantage of **exposing students to various models of evaluating knowledge and skills**, encompassing conventional theoretical written exams, oral exams, e-learning methods, case-based assessments, and clinical case reports and discussions. Furthermore, it is common practice for students **to seek post-assessment feedback and guidance for improvement from US Regents**. A minority of students use exam appeal mechanisms, indicating the efficacy of the system. This has been further enhanced since the implementation of the **last revision of the “Regulation for the Assessment of Knowledge and Competencies and Admission to the Final Exam of the 1st, 2nd, and 3rd Study Cycles at FMV-Lisboa” in 2023-2024**.

8.7. Suggestions for improvement in Area 8

Limitations on the number of teachers, due to financial constraints, made it difficult to **improve the support for students who do not perform adequately**, namely individual coaching with appointed tutors, although this would be very beneficial for at-risk students. Nevertheless, an effort has been made since 2018 under the scope of the Student Support Office (GAPE), to enhance a better understanding of critical situations of low academic success, both by the Teachers-Tutors, but also by the Group of Mentors (GM), allowing a better definition for the sort of help/supervision each student needs, promoting a better academic success and student' welfare.

While teaching-assessment models based on PBL and CBL are widespread, **the use of e-learning is still scarce and should be increased**, namely in Basic Sciences US. An improvement would also come out from **converting paper based theoretical examinations into individual computer-based examinations** that would be environmental-friendly and allow for a faster correction. Financial appraisal of this option is under assessment.

Feedback from veterinarians and nurses who work with students in the VTH was previously lacking, but has been addressed over the past two years. This improvement was initiated by a PC decision. As a result, there is now a more structured feedback mechanism in place for the clinical rotations of final-year students, which will be continuously monitored.





9. *Teaching and support staff*





9. TEACHING AND SUPPORT STAFF

9.1. Global strategy in order to ensure that all requested competences for the veterinary programme are covered and that staff are properly qualified and prepared for their roles

As stated above, **the list of competences that graduates in Veterinary Medicine should hold by the time of graduation was approved by the SC on 10th May 2000, and revised on 30th July 2014 and on 18th June 2024 (Appendix 7), considering European guidelines and recommendations resulting from national and international evaluations, and including Day One Competences listed in ESEVT SOP. In 2014, a logbook was adopted to record and attest to pre-clinical and clinical training and skills of students, complementing the evaluation system in place for each UC, which in 2023-2024 was adapted into a software program application (app) designed for the use of supervisors and students. There are several levels and bodies in place to ensure that all competences are covered.** The SPC of each US and the Study Coordinator of each scientific area monitor and update teaching syllabuses and pedagogic methods. They communicate any problems to the Scientific Committee of IMVM and/or the SC and PC.

The qualification of the teaching staff is a main priority. Currently, 80% of teachers hold a PhD degree, 77.5% are full-time, and 71.3% in exclusivity, ensuring they have time to teach, assist students, upgrade their knowledge, and conduct research. The renewal of teaching staff is taking place by hiring new teachers in international recruitment calls (in force with national legislation), with well-defined criteria, aiming at selecting individuals with a PhD degree in the area, good CV, and preferentially, with a veterinary specialist diploma.

The pedagogic quality of teaching and assessment is coordinated by PC which recommends and discloses pedagogic courses organized by ULisboa and other universities. PBL methodology was introduced several years ago in some US (mainly in Animal Health and Clinics), stimulating new approaches and student's curiosity. The e-learning platform (MOODLE) facilitates the communication between students and teachers, the delivery of bibliographic support and other learning resources, quiz assessments, and other e-learning pedagogic tools. Other more advanced e-learning resources are also available from ULisboa. All staff (teaching, research, support) and students have free access to the main bibliographic research databases (Online Knowledge Library b-on, SPRINGER, Scopus, Web of Science, Pubmed) allowing quick and easy access to the latest scientific information.

QA procedures on teaching quality have been followed since a long time ago. Since 1991, PC has conducted inquiries to students about the functioning of US, and on the pedagogic performance of teachers. These inquiries are important tools to identify problems and promote continuous improvement. The results of those inquiries are taken into consideration in the teachers' performance evaluation system, in force since 2010: Teachers who do not meet the stipulated minimum are penalized and those who complete training above this minimum are valued.

Since 2019, **pedagogical training for all teachers, veterinarians, and nurses hired by VTH is mandatory.** Full-time teachers, who have been employed by FMV for less than 6 years, are required to attend a minimum of 12 hours of pedagogical training for each three-year period of performance evaluation. For those hired full-time for more than 6 years and for invited teachers, the attendance of a minimum of 6 hours of pedagogical training is required for each three-year period of performance assessment. VTH veterinarians and nurses must attend specific pedagogical training courses recommended by PC with a minimum duration of 6 hours per three-year period. This strategy has greatly increased the frequency of pedagogical training attended by teachers, which in recent years far exceeded the minimum required, with the following values:



Pedagogical training of teachers	2022-23	2021-22	2020-21	Mean
Average number of training sessions attended	2.6	3.1	3.7	3.13
Average number of hours attended	31.0	25.4	15.8	24.1

Recently, training was also endorsed to teachers and VTH veterinarians and nurses on how the new logbook app works. Furthermore, the Rectory and FMV have promoted the **pedagogical training of teachers**, especially younger ones at the beginning of their careers. Several initiatives are worth highlighting:

- Financial support for attending the **postgraduate course in Higher Education Pedagogy**, offered by the Institute of Education of the University of Lisbon since 2019 (13 FMV teachers have attended this post-graduation until now),
- The **Program for Early Career Teachers**, totalling 15 hours, consisting of a set of workshops aimed at teachers and researchers belonging to ULisboa and with little teaching experience,
- The participation in the program **Observe and Learn**, since 2013, aiming the reciprocal attendance of classes between teachers of different areas of knowledge,
- Annual **Pedagogical Days at ULisboa**, where cross-cutting themes of pedagogy in higher education are discussed,
- The Rectory and FMV successfully competed for several sources of funding for pedagogical innovation programs that will bring significant improvements in this area, namely for a project to Promote Success and Reduce Dropout in Higher Education and for a Centre of Excellence for Pedagogical Innovation.

The pedagogical training attended by teachers also **accounted for the teacher performance evaluation system**: teachers who did not meet the stipulated minimum are penalized and those who completed training above this minimum are valued.

Biosecurity is also an important aspect to which FMV is committed. From long ago, FMV has had a full-time biosecurity technician who ensures rules' compliance. Students and staff are aware of biosecurity guidelines and so facilities, equipment and animals are safely used and handled.

9.2. Number, qualifications and skills of all staff involved with the study programme

In addition to the information described in the following tables, more detailed information on current academic staff, qualifications, their FTE, teaching responsibilities, and departmental affiliations is shown in Appendix 14.

Table 9.2.1. Teaching staff involved with the core veterinary programme

Type of contract	2022-23	2021-22	2020-21	Mean
Academic staff (FTE)				
Permanent (FTE)	64	58	59	60.33
Temporary (invited)	6.84	8.32	6.62	7.26
Interns (FTE)	6	9	9	8.00
Residents (FTE)	6	5	3	5.33
PhD students (FTE) *	0	0	0	0.00
Certified specialists (FTE) **	8.5	5.5	6.5	6.83
Practitioners (VTH Veterinarians, FTE)	38.5	32.5	27.5	32.83
Researchers	3	1	1	1.67
Total (FTE)	125.34	113.82	106.12	115.43

*PhD students are not generally included in the academic staff, only a few participate in a very limited way in the veterinary programme.

**Hired as teachers or by the VTH, included in permanent academic staff or practitioners.

**Table 9.2.2. Percentage (%) of veterinarians in academic staff**

Type of contract	2022-23	2021-22	2020-21	Mean
Permanent (FTE)	92.5	89.7	93.0	91.2
Temporary (FTE)	100	100	100	100

Table 9.2.3. Support staff of the veterinary programme

Type of contract	2022-23	2021-22	2020-21	Mean
Permanent (FTE)	132	123	103	119.3
Temporary (FTE)	0	0	0	0
Total (FTE)	132	123	103	119.3

Table 9.2.4. Research staff

Type of contract	2022-23	2021-22	2020-21	Mean
Permanent (FTE)	3	1	1	1.7
Temporary (FTE)	9	10	12	10.3
Total (FTE)	12	11	13	12.0

9.2.1. Prospected number of FTE teaching and support staff of the veterinary programme for the next 3 academic years

In addition to the replacement of retirees and the rejuvenation of teams with younger and better-prepared teaching and non-teaching staff, the revision of the study plan, with more hours of clinical rotations and a new curricular organization, will require more teaching and support staff, particularly senior or diplomate veterinarians and nurses hired by VTH. This hiring effort has been carried out in recent years, as can be seen in the tables above.

Therefore, for the next three academic years, FMV intends to continue appointing new teachers, all with a PhD degree, good CV, and, preferentially, with a Specialist diploma to renew the teaching staff, since some teachers will soon retire and the average age is high (53.13 years). Part of these calls will be directed to hire invited teachers who have demonstrated their quality and deserve an opportunity to join the academic career. At the same time, it is vital to open calls for career promotion, rewarding those with the highest merit.

The training of interns and residents was implemented in 2019, as part of a strategy to boost VTH dynamics and more specialized services, important for the attraction of more referral cases and, thus, contributing to improve training quality.

In conclusion, for the next 3 academic years, the prospective number of FTE teaching and support staff of the veterinary programme are:

Type of contract	2024-25	2025-26	2026-27	Mean
Teaching staff (FTE)*	113	114	115	114
Interns (FTE)	7	8	8	7.7
Residents (FTE)	8	9	9	8.7
Support staff	133	134	135	134
Total (FTE)	261	265	267	264.4

*Include teachers, VTH veterinarians and researchers

9.2.2. Programme for the selection and recruitment of the teaching staff and their training to teach and assess students (including continuing education)

Through the structures and mechanisms already described, **each scientific area identifies the need to appoint a teacher to a specific US**, for instance due to teachers' retirement, introduction of new subjects as a result of syllabus updates, or the need to promote interaction with other US



to enhance students' development of transdisciplinary skills. The hiring of a new teacher sometimes begins with an invited teacher (part-time) with a good CV, in order to demonstrate his/her suitability for the position. The new contract is proposed to SC based on a report referring to the reasons for the specific need, including the opinion of two teachers of the area. In case a full-time contract is needed, the scientific area proposes the opening of an international call for assistant teachers, specifying the criteria to be used in the selection and indicating the composition of the selection panel, following the legislation in force. In both situations, **SC analyses the proposal and, if approved, makes a proposition to the Dean.**

New teachers are integrated in the US teaching team, who will support them in the preparation of classes and in the assessment of students. The SPC and Study Coordinator will monitor the integration process. Although new teachers usually already have some teaching experience, mandatory pedagogic courses organized by ULisboa are used to reinforce teaching competences. Subsequently, the opinion of students expressed in inquiries performed by PC will help to identify specific pedagogic training needs. **In the 1st year of collaboration, the SPC assists the new teacher in the preparation of teaching-learning materials and questions for written exams, attends theoretical classes, co-teaches practical classes, and co-evaluates themes of the practical syllabus.** This methodology allows the SPC to integrate gradually the new teacher into the team and teaching-learning environment, to guide and correct any deficiencies, and to identify training courses to improve and expand skills. **From the 2nd to the 5th year of teaching the SPC maintains the measures of support and supervision, safeguarding increasing room for the empowerment of the new teacher.** After 4.5 years, the teacher must write an activity report that is evaluated by SC. If approved, the teacher then signs an undefined period contract or, otherwise, if expected levels of performance have not been reached, the contract is not renewed. SPC of the US, the Head of the Department, and the PC President take part in this decision process.

9.2.3. Description of the formal programme for the selection, recruitment and training to perform their specific duties of the support staff

Support staff is recruited according to needs and financial availability. Calls are open with well-defined selection criteria and evaluation panels, seeking to select the best CV, both in terms of training and experience. After selection, they integrate the working team that helps them to become acquainted with the faculty and specific duties.

Regarding the **pedagogical training of VTH veterinarians and veterinary nurses**, the PC organized an initial training module covering five topics (totaling 5 hours). This training is mandatory and scheduled during reserved working hours to ensure maximum participation, with a biannual frequency, reflecting the need to ensure that professionals are up-to-date and aligned with the objectives and competencies of VTH, as well as with the best FMV's practices and standards. Next academic year, a more advanced training program will be developed for those who have already participated in this module, ensuring the continuous evolution of the pedagogic competences.

VTH veterinarians and nurses also attend PC training **to assess students' performance in the logbook.** If interested in reinforcing and/or expanding their abilities, **support staff may also attend training courses** offered by ULisboa.

9.2.4. Description of the formal rules governing outside work, including consultation and private practice, by staff working at the Establishment

According to Portuguese legislation, **teachers carry out their duties full-time with exclusive dedication. However, at their request, they can perform their duties in a full-time regime without exclusivity.** The regime of exclusive dedication implies the renunciation of the exercise of any remunerated function or activity, whether public or private, including the practice of liberal



professions. However, there are some exceptions to this rule, such as the remuneration of copyright, conferences, lectures, short courses, travel expenses, functions in bodies of the FMV, and participation in evaluations and selection boards. The full-time regime corresponds to a 35-hour working week. In both cases, any accumulation with other functions, whether public or private, remunerated or unpaid, requires prior Dean's authorization. Teachers with exclusive dedication earn 33% more than equal-category teachers in just full-time.

Support staff is hired on a full-time regimen, without exclusive dedication. Any accumulation with other functions, whether public or private, remunerated or unpaid, requires Dean's prior authorization.

9.3. Work contract for teaching staff

The **university teaching career in Portugal is attractive**, with high job security after a 5-year trial period, and reasonable salaries for the Portuguese standards of living, although lower than those paid in the private sector, particularly in the clinical area and especially in the highest-paid specialties. The average weekly teaching load varies between 6 and 12 hours, leaving enough time available for research, services, continuing education, and participation in the management of the Faculty and scholarly activities (*e.g.* in the VTH). The Faculty's Research Center (CIISA) **provides competitive funding opportunities for initial research** or in new areas, seeking to reinforce subsequent applications for external, national, and international funding. The Faculty provides all conditions for scientific and pedagogical updating of teachers and non-teaching staff, from training actions to easy access to information bases, in comfortable and modern spaces.

The **performance evaluation system encourages high performance**, in all its aspects. The evaluation of teachers by students is valued and can be penalized in case of poor classification. **Merit is rewarded by career advancement or salary improvements in the same category.**

9.4. Programme for the appraisal, development, promotion criteria and procedures, supporting and mentoring of both academic and support staff

According to specific legislation and regulations of ULisboa and FMV, **teachers are evaluated according to a system that aims to guide their performance, improve the quality and the enhancement of their skills, urging their dedication, commitment, and continuous knowledge updating, rewarding the merit with awards and career progressions.** This system:

- a) Defines the parameters and evaluation criteria for each component of the teachers' work,
- b) Defines the rules for setting performance benchmarks, through set goals and upper limits,
- c) Specifies the relative weight of the evaluation criteria for each component and the relative weight of each component in the combined components of teachers' activity,
- d) Defines the methodology to estimate the final grade and the corresponding qualitative performance classification.

The classification on the top grade (Excellent) in two successive 3-year periods implies a salary increase by one step within the category to which the teacher belongs (Full, Associate, or Auxiliary Professors, each category has 4 steps). For further details see Appendix 15.

Regarding support staff, the official assessment system for the majority of public workers (SIADAP- Integrated System of Management and Performance Assessment in Public Administration) was established in 2004, and reviewed in 2007 and 2023. This system focuses on the results of the performance evaluation of employees and depends on defined objectives for each working position and the degree of their accomplishment. **The consequence of SIADAP evaluation is the change in remunerative position within a category**, as a rule, to the position immediately above, depending on performance result, or to an even higher position where the reward of performance with merit is intended.

9.5. Allocating, recruiting, promoting, supporting and assessing teaching and support staff

9.5.1. Description of the formal programme of the Establishment for the assessment of teachers by students and its outcome

Since 1991, the PC has carried out student surveys on the study program, US, and teachers' pedagogical performance. Teachers are assessed on different criteria: assiduity, punctuality, clarity of presentation, certainty of presentation, ability to stimulate interest, availability, development of reasoning/critical thinking, and global valuation of their teaching. **The results of these inquiries are sent to and analysed by IMVM Scientific Committee, PC, SC and Dean.** They are key documents for internal control of teaching quality patterns as they allow for early identification of irregular working of certain US. To investigate and amend these situations, PC meets with US students' delegate, year student delegate, SPC, and Study Coordinator of the scientific area. This "quadrumvirate" solves the majority of identified pedagogic failures. The SC, PC' students and Students' Association are involved in the discussion and decision-making of complex cases. These procedures are consolidated and they promote student involvement on the continuous improvement of the teaching/learning process. Thus, they are considered by all school bodies of utmost importance.

The results from these inquiries are also valued in teachers' performance assessments, as described above. Students' appraisal of teachers averaged 4.09, on a scale of 0 to 5, in the four years 2019 to 2022, which is a very good indicator of overall teacher quality and of the friendly teaching-learning environment that is experienced and cultivated in FMV. **Until 2018, the inquiries have been filled anonymously by students, on paper, at the end of the US, preferably during practical classes to ensure high adherence.** Although not compulsory, the proportion of students filling up inquiries has been rather high (>70%). The paper method and interpretation of results are both time-consuming and expensive as special OCR equipment is required to read the inquiry sheets. So, in 2019, PC moved to the online inquiry that **allows for automatic data storing and faster data analysis**, but a substantial drop in the proportion of students that complete the inquiries occurred. PC is working closely with students to avoid this significant decrease of their participation. The Rectory organized an all-Schools working group to build a model that will allow an aggregated vision of ULisboa, together with School specific parts, to collect and analyse student inquiry data.

9.5.2. How and by whom the strategy for allocating, recruiting, promoting, supporting and assessing teaching and support staff is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

As referred above, **the main structures responsible for detecting any shortcomings or weaknesses in human teaching resources are, primarily, the SPC of the US and the Study Coordinator of the scientific area, the Departments and the PC.** The SC has also an annual opportunity to assess human resources adequacy when it receives Departments' proposals for the distribution of teaching load amongst teachers. The SC defines the terms of the call on a proposal from the department, namely admission requirements, selection criteria, and jury. For support staff, departments manage their human resources, requesting any changes or reinforcements to the Dean. **Once the need is identified, and financial availability confirmed, the recruitment is promoted by a public call, with straightforward and clear rules, defined in the legislation.** In this case, it is the Management Council that establishes the terms of the call, on a proposal from the department or the Head of the respective Division.

The performance of teachers and support staff is assessed through official evaluation systems (see 9.4) which must recognize and reward merit through wage progression. The most relevant component in a teacher's career is the **progression in categories:** Auxiliary, Associate, and Full professor. **SC promotes a regular (annual) analysis, comparing the 5 scientific areas regarding:**



- a) Higher number of internal candidates with a CV of high merit,
- b) Lower number of Full and/or Associate professors in the area,
- c) Longest period without opening calls in the area.

When financial support is available, SC proposes the Dean opening a call in a specific scientific area for the category of Associate or Full professor, with well-defined criteria and panels composed mostly by external members to FMV. These calls have been regularly opened over the last years, on average one vacancy for Associate and for Full professor per year.

All these systems of performance assessment and career progression are official and well-known of staff and published in the official government journal. Calls are also obligatorily advertised in several official websites (Public Employment Board, EUCareers (<https://epso.europa.eu/>), FMV website).

9.6. Comments on Area 9

In the last decade, FMV made a huge effort to raise funds from less traditional sources, in particular the VTH, which allowed to maintain the quality of education and, in particular, the appointment of invited teachers, veterinarians, and nurses to work at VTH. Thus, although this is not the ideal solution due to particular requirements of career and functions, invited teachers and VTH veterinarians allowed for a quality increase in students' clinical training and reaching adequate ratios. The budget improvement in response to the longstanding demand for equivalent funding to Human Medicine education is allowing the employment of more teachers and the renewal of the faculty staff.

The Portuguese University Teaching Career Statute recommends that the group of full and associate teachers **must represent between 50% and 70%** of the teachers, a ratio that in FMV is actually 47%. That ratio was already achieved in the past and will be achieved again with the calls that have now been authorized to open. Even so, this rate at FMV is one of the best in ULisboa and, as far as we know of other Portuguese Schools, probably of the country, as it has always been FMV's concern to ensure the promotion of the best teachers, as much as financial resources allow.

9.7. Suggestions for improvement in Area 9

The **continuous improvement of evaluation systems** and the implementation of **merit reward systems** are very important aspects of motivating all human resources. Within what the Law and the budget allow us, we will try to implement more actions that will allow to improve these aspects.







10. *Research programs,
continuing and postgraduate education*





10. RESEARCH PROGRAMMES, CONTINUING AND POSTGRADUATE EDUCATION

10.1. How the research activities of FMV and the implication of most academic staff in it contribute to research-based veterinary education

As stated in its mission, **FMV aims to be an internationally recognized institution of excellence in veterinary education and research, permanently adapted to the needs of society, contributing for the advancement of the frontiers of knowledge.** The general objectives of FMV are to promote an adequate research-based veterinary practice that enables students to diagnose and treat sick animals, contribute to animal production in a well-being and welfare environment, protect humans from zoonosis, and ensure high-quality animal products for human consumption. Thus, **FMV teaching is based on the principles and methods of scientific research**, practiced by its teachers and researchers, stimulating the contact of students with these activities since their 1st year and showing them how knowledge is built.

To develop and coordinate R&D activities conducted at FMV, an interdepartmental research centre was formed in 1992, **the Centre for Interdisciplinary Research in Animal Health (CIISA, <https://ciisa.fmv.ulisboa.pt/>)**. CIISA's activities are in accordance with Europe's increasing concerns with animal health related issues that have considerable impact on global economy and public health and also with general claims for development of novel environmentally sustainable systems for animal production and agriculture. Along 32 years of activity, high quality fundamental and applied multidisciplinary research has been pursued with major impacts on veterinary sciences at scientific, economic, and social levels. Contributions to improve animal and human quality of life, under the "One Health" concept, are noticeable through the development of novel strategies for diagnosis and therapeutics, innovative biotechnological products, sustainable production systems, and safe animal products of high quality.

CIISA has been the research face of FMV in the last 32 years, applying successfully for pluri-annual research funding from the relevant government institution, the Foundation for Science and Technology (FCT).

In CIISA's current activity, direct support for the research activity of its laboratories stands out in the financing of internal projects evaluated by a panel, in the categories:

- a) “Innovation” - exploratory research lines, that are not easily funded by external institutions,
- b) “Continuity” - research lines between an already funded line and a new financing opportunity,
- c) “Master’s” - support for research work development by IMVM students during their EPT.

CIISA also promotes the publication of research results, communications, and presentations by its researchers in scientific meetings, or missions to prepare projects or research networks, supporting registration, travelling, and accommodation expenses. International panels regularly evaluate CIISA, which has been **ranked by FCT with “Excelent”** on the last evaluation (2018).

CIISA currently has 158 members, including 105 PhD entitled researchers, 57 PhD students, 9 technicians, and a financial and communication office. PhD entitled researchers are mainly FMV teachers and researchers, but CIISA also hosts 24 external invited researchers. **Nowadays, CIISA is organized into two major research groups, each developing two main thematic lines:**

- a) **Animal Health and Veterinary Medicine:** Disease surveillance, prevention, and control towards sustainable animal health; and Clinical research towards novel diagnosis and therapeutic strategies,
- b) **Animal Science and Food Safety:** A sustainable Animal Production for the 21st century; and Advanced food processing, quality and safety: new challenges.

Research is mainly funded through national and international projects attracted by CIISA researchers from very competitive programmes. The implementation of these projects **allows**



students to engage in more or less complex activities, from the visit to the laboratory and brief understanding of the project to the voluntary collaboration in laboratory activities or in a curricular traineeship with the consequent thesis preparation. Some international projects with European partners have even allowed small internships in foreign laboratories, some with the help of mobility programmes, constituting a very rich experience in student training. **To promote research activities among students and attract them to research, CIISA yearly launches a call for funding 12 IMVM research thesis**, the “master’s” category stated above. Several students’ thesis whose traineeship occurs at FMV is performed within the scope of CIISA’s research lines. Some of these students later enrol in a doctoral program or start a research career with a research initiation grant.

Table 10.1.1 describes the major (> 50,000€/year) funded research programs in FMV which were on-going during the last full academic year prior to the Visitation. The list of all projects with competitive funding on-going in the last three academic years is in Appendix 16.

Table 10.1.1. List of the major funded research programmes in the Establishment which were on-going during the last full academic year prior the Visitation

Scientific topics	grant/year (€)	Duration (Yrs)
Centre for Interdisciplinary Research in Animal Health (CIISA) (UIDB/00276/2020)	415,870	5.00
Centre for Interdisciplinary Research in Animal Health (CIISA) (UIDP/00276/2020)	162,000	5.00
CleanSmoke - Industrial smoking products and processes (LISBOA-01-0247-FEDER-068048)	170,696	2.00
VACDIVA - A safe DIVA vaccine for African Swine Fever control and eradication (GA N° 862874)	166,660	4.75
Algadigest - Development of a new enzyme supplementation solution for the sustainability of poultry production based on the efficient use of microalgae (LISBOA-01-0247-FEDER-070114)	140,512	2.04
GlycoMed - A new generation of enzymes for biofilm degradation and modulation of the immune response in cancer (LISBOA-01-0247-FEDER-047033)	128,008	2.00
Equine ElectroPeloTherapy: Development of electronic equipment for the physical rehabilitation of horses in the transdermal application of therapeutic peloids (LISBOA-01-0247-FEDER-047201 - E2PT)	115,203	1.67
MarEpiEnd - Epigenetic Modifications in the Mare's Endometrium: Implications in the Pathogenesis of Fibrosis in Endometriosis (2022.09161.PTDC)	76,440	3.00
TLR2Vac - Targeting TLR2 for improved veterinary vaccines (PTDC/CVT-CVT/4599/2021)	75,353	3.00
AL4Animals - Associate Laboratory for Animal and Veterinary Sciences (LA/P/0059/2020)	75,000	5.00
GreenBeef - Towards carbon neutral Angus beef production in Portugal (LISBOA-01-0247-FEDER-047050)	74,289	3.00
GEroNIMO - Genome and Epigenome eNabled breedIng in Monogastrics (GA N° 101000236)	73,585	5.00
RE(SOLVE)INFLAM - Exploring resolving mechanisms in cow persistent uterine and mammary inflammation. (PTDC/CVT-CVT/6932/2020)	71,318	3.50
Multi-omic approach to study the lipid metabolism in the rumen for improving the quality of ruminant-derived foods. (PTDC/CAL-ZOO/29654/2017)	51,163	4.00



10.2. Students' training in scientific methods and research techniques

10.2.1. How students are made aware of the importance of evidence-based medicine, scientific research and lifelong learning

Veterinary Sciences are based on knowledge arising from scientific research and evidence-based medicine, and, consequently, their teaching is permanently linked with scientific activities. Teachers use in-classroom results obtained in their research projects, and the collaboration of CIISA researchers and VTH veterinarians in seminars, practical classes and coaching of small groups or students is common.

There is a permanent stimulus for students to develop their scientific interests, early from the 2nd year of IMVM at Complementary Activities III and IV, when they visit research labs in small groups according to a defined schedule, and **meet researchers and the research lines of CIISA**. During the 3rd, 4th, and 5th years and on the curricular traineeship, **students have the opportunity to perform research activities and, retrospectively or prospectively, use VTH cases that will be the core of their thesis**. At VTH, students' best works are submitted in posters or oral communications at national and international veterinary congresses, with the support of teachers and VTH veterinarians. **This strategy also intends to show them how research produces knowledge and how ephemeral and permanent evolution science is**, to foster their interest for scientific work and to demonstrate how crucial a **permanent update is to become a competent professional**.

Therefore, **students are very aware of the need for LLL**. **In addition to teachers' initiatives, students organize various training activities** such as seminars, workshops, the annual Veterinary Medical Conferences (47 editions), and even international meetings like FAUNA International Conference (12 editions), in the frame of Student's Association, with the participation of not only FMV teachers but also national and international professionals, with a special concern on graduates updating.

10.2.2. How students are initiated into bibliographic search, scientific methods and research techniques, and the writing of scientific papers

First semester **US Biomathematics, Computing and Documentation** (5.0 ECTS) introduces students to bibliographic search, the goal being students **be able to search and critically read technical and scientific papers, as well as search the internet and online library databases** for scientific and technical documents. Throughout the programme, teachers repeatedly emphasize that all knowledge must be constructed, confirmed, and consolidated by scientific methods, where only what is demonstrable and replicable by independent teams is acceptable. Contact with research happens from the first day, in classes, where teachers show how knowledge was constructed and the results of their own research activities. In IMVM 2nd year, this contact is formalized and mandatory in US Complementary Activities III and IV, whose objectives, among others, are:

- a) To promote **student's involvement with research and routine laboratory procedures** performed at FMV labs,
- b) Ensure students follow and **participate in laboratory activities** and recognize the lab as a workplace where security is fundamental.

Also, from the 1st year, students are faced with requests to prepare **individual or group work where bibliographical research is required and technical and scientific writing is trained**. Later, in connection with an ongoing scientific project or with the results of the EPT, they are encouraged to participate in communications at scientific meetings and in the preparation of scientific papers. **Many master theses are written in English** (see Appendix 18) to make these publications easier to prepare.



10.2.3. How undergraduate students are offered to participate in research programmes on a non-compulsory or compulsory basis

From the 1st to the 5th year, **students are invited by teachers to help in ongoing scientific project activities**, on a non-compulsory basis, not only to integrate them into this type of activity but also because, naturally, this workforce is very useful. The **EPT is a great opportunity for those who are more interested in research** to integrate a scientific project more continuously and intensely, taking advantage of some of these activities to carry out the EPT and prepare the master's thesis.

10.2.4. Minimum requirements for the graduation thesis (Master dissertation), its supervision and its assessment

For the EPT application to be accepted by the Internship Committee and, in the end, for the provisional version of the master's thesis to be accepted for evaluation by the jury, there are a **minimum of requirements that the student and the document must meet**, which are described in the articles 8 to 14 of the IMVM' Regulation, namely:

- a) The practical component of the traineeship must include **not less than 500 hours**,
- b) The dissertation must be written following the **official rules**,
- c) The student has been **approved in all the US of the first 10 semesters**,
- d) Declarations of the supervisor and co-supervisor (if any), stating that the **dissertation meets the conditions required** for its analysis and discussion.

Following Portuguese law:

- a) The **supervision of the curricular traineeship and dissertation** (supervisor and a co-supervisor, if any), is carried out by a PhD or a specialist whose merit in the scientific area of the curricular traineeship is recognized by the SC, with a minimum of 10 years of experience in the area, effective exercise of 5 years in the last 10 years and not holding an indefinite contract with a higher education institution,
- b) The assessment is carried out by a **jury appointed by the SC President** for its analysis and discussion in a public viva, which includes three members: the supervisor and two PhD holders who work in FMV, exceptionally one of the latter may be replaced by a specialist of recognized merit by SC.

The **public viva** has a maximum duration of 1 hour and 30 minutes, including the oral presentation of the work by the student (15 minutes). The final classification of the curricular traineeship and dissertation is expressed on a numerical scale from 0 to 20. For its attribution should be taken into consideration the **performance of the candidate in practical activities during the curricular traineeship period and the quality of the dissertation, oral presentation, and discussion**.

**10.3. Advanced postgraduate degree programmes**

The following tables show the number of students registered in postgraduate clinical training, research training, and other postgraduate programs.

Table 10.3.1. Number of students registered at postgraduate clinical training

	2022-23	2021-22	2020-21	Mean
Interns:				
Companion Animals:				
Internal Medicine	1	1	1	1
Ophthalmology	-	-	-	-
Dermatology	1	1	1	1
Oncology	-	1	1	1
Cardiology	-	-	-	-
Surgery	-	1	1	1
Ultrasound imaging	-	1	1	1
Dentistry, oral and maxillofacial surgery	1	1	1	1
Equine Medicine and Surgery	3	3	3	3
TOTAL	6	9	9	8
Residents:				
Veterinary Internal Medicine – Companion Animals	2	1	1	1.33
Equine Internal Medicine	1	1	1	1
Veterinary Surgeons	1	1	-	1
Bovine Health Management	2	-	-	1
Veterinary Microbiology	1	1	-	1
Animal Welfare and Behavioural Medicine	1	1	1	1
TOTAL	8	5	3	5.33

Table 10.3.2. Number of students registered at postgraduate research training

Degrees	2022-23	2021-22	2020-21	Mean
PhD in Veterinary Sciences	57	42	40	46.3

Table 10.3.3. Number of students registered at other postgraduate programmes (including any external/distance learning courses)

Programmes	2022-23	2021-22	2020-21	Mean
Master in Food Safety	53	48	37	46
Master in Zootechnical Engineering	17	16	15	16
Master in Microbiology	21	16	18	18.3

The list of the scientific publications from FMV academic staff in peer-reviewed journals in the last three years and of the PhD and master thesis (IMVM) in the last academic three years are in Appendix 17 and 18.

10.3.1. Prospected number of students registered at post-graduate programmes for the next 3 academic years

The number of scholarships granted by FCT increased significantly with the improvement of CIISA's rating from Very Good to Excellent, including the financing of 12 PhD scholarships. The future perspective will depend mainly on the next CIISA assessment, which will take place in the Autumn of 2024, but, considering the increasing interest in research careers, other support programs, such as ULisboa grants, and some saturation of Companion Animals Clinics market,



mainly in urban areas, leads us to admit that the number of PhD students could increase in the next 3 years.

It should be noted that, in addition to the PhD in Veterinary Sciences, FMV also participates in the PhD programme in Sustainability Science (REASOn | REsources, Food and Society <https://csustentabilidade.ulisboa.pt/index-en.html>) since 2018-19, and that in the year 2024-2025 it will open a new PhD program, in Planetary Health Science, in which FMV will also have significant participation.

Concerning master's degrees, the prospects are also for a slight increase in response to the growing demand for more training and professional qualifications. In this context, it is worth highlighting the new master's degree in Equine Sciences that began in 2023-24 with great success but which will only open vacancies every two years. Therefore, **FMV expects that the number of students registered at post-graduate programmes will reach the following values in the next years:**

Post-graduate students	2024-25	2025-26	2026-27	Mean
Veterinary Sciences PhD	64	66	68	66.0
Sustainability Science PhD	50	52	54	52.0
Planetary Health Science PhD	20	40	60	40.0
Master in Food Safety	55	57	59	57.0
Master in Zootechnical Engineering	18	20	22	20.0
Master in Equine Sciences	18	18	25	20.3
Master in Microbiology	22	24	26	24.0
Total	247	277	314	279.3

10.3.2. How students of the postgraduate clinical trainings contribute to undergraduate veterinary education and how potential conflicts in relation to case management between post- and undergraduate students are avoided

VTH and associated laboratories are attended by students of the 3rd, 4th, and 5th curricular years, trainees (6th year of IMVM), PhD students, and Postdoctoral researchers. **Student collaborative learning is a PC and VTH Board policy.** The aim is encouraging students to reach out to each other to solve clinical problems and share knowledge because not only builds collaboration skills, it leads to deeper learning and understanding. Three brief examples of this policy: (1) PhD students or Postdoctoral researchers give **seminars** about their research projects in some IMVM mandatory US, but especially in **electives**, (2) VTH trainees are integrated into ongoing VTH research projects where Postdoctoral researchers and PhD students help their colleagues to improve their clinical and/or laboratory expertise, (3) trainees and 5th year students help their 3rd and 4th year colleagues in **high-risk interventions** such as preparing animals for surgery or life support measures. **All student's collaborative activities take place under the supervision of a veterinary or a nurse.**

VTH Board allows students access to QVET electronic patient record system in accordance with their needs. Trainees, PhD students, and Postdoctoral researchers' supervisors monitor their activities and solve any conflict at first instance. **Serious conflicts, concerning case management, forcing PC to make internal enquiries and to apply disciplinary proceedings are rare.**

10.3.3. How continuing education programmes provided by FMV are matched to the needs of the profession and the community

The LLL program is organized taking into account suggestions or external requests from professional or scientific organizations, colleagues or *alumni*, and the initiative of teachers. The LLL program considers areas where knowledge advanced faster and, therefore, where the need for professional' updates is more urgent. In addition, an effort is made to offer courses in all main areas of employment, Clinics, Animal Health, Animal Production, and Food Safety.



The FMV offer of these LLL courses is not very abundant because teachers are quite overloaded with classes, research, and service provision, components that are more important for FMV's mission and for enhancing teachers' CVs. It is expected that the increase in the number of teachers can improve this component of continuing education. On the other hand, particularly in the clinical area, there is a huge offer of training on the market, often with a more advantageous work schedule (after work), making it not easy to compete for candidates.

Short to medium-duration courses are organized, resorting to external teachers whenever necessary, in a schedule feasible for professionals. Courses offered over the last three years are described in Table 10.3.4. Unfortunately, due to restrictions on mobility caused by COVID-19 and all the extra work that the pandemic caused during these years, no courses were held in 2020-21 and 2021-22.

Table 10.3.4. Number of attendees to continuing education courses provided by FMV

Courses	2022-23	2021-22*	2020-21*	Mean
Non-Invasive Maxillofacial Osteosynthesis Course in Dogs and Cats	20	0	0	20
Equine Feeding Course	14	0	0	14
Assessment of Equine Body Condition	14	0	0	14
Training in Multiple Ovulation and Embryo Transfer in Cattle	4	0	0	4
Animal Welfare on Pig Farms	21	0	0	21
Postgraduate in Pest Management	17	0	0	17
Postgraduate in Medical-Surgical Nursing of Companion Animals*	23	0	0	23

* Due to restrictions on mobility caused by COVID-19, no courses were held these years.

Another way of matching the LLL programme to the needs of the profession and the community was established by legislation that created **the possibility for students from other study programs and other interested individuals to attend US from any study programme**. FMV approved its own regulation, establishing access requirements for each US (previous training considered indispensable for acquisition of competences) and the fee due. This path has not yet been widely used to spread and update knowledge, probably because schedules are not compatible with professionals' activities. This path was used on average by 6 students in the last three years. Overall, in the last year (2022-23), 113 students attended continuing education programmes at FMV.

As a way of reaching out to the community of referring veterinarians, FMV organized an event called VTH Open Day, already with two editions: 2023 and 2024 editions. This event intends to foster team building among our hospital staff members, increase the interaction with the community of referring veterinarians, and allow for the presentation and discussion of interesting clinical cases from the VTH, envisioning knowledge sharing and dissemination between clinicians. Moreover, it also reaches out to students because the event is transmitted online live through streaming. The 2024 edition was organized in conjunction with the Students Association congress, over three days, had more than 200 participants and over 10 sponsors, being considered a very successful teamwork between FMV, VTH, and the Students Association.



10.4. How research provide opportunities for student training and staff promotion, and how research approaches, methods and results are integrated into the study programme

10.4.1. Mechanism used by the VEE to ensure that its research activities contribute to research-based education

FMV's integrated Quality Assurance system includes a process relating to research, which provides for a **set of indicators to control scientific activity and its success**, namely:

- a) Classification of the Research Center,
- b) Applications for external competitive funded projects and their success, active R&D projects and attracted funding,
- c) Members integrated into the Center and PhD students,
- d) Publications indexed on the main scientific platforms and their percentiles,
- e) Publication of PhD Theses,
- f) Dissemination to society and transfer of knowledge.

This annual control allows for the **monitoring and stimulation of scientific activity and ensures that teaching is based on research**, whether directly translatable to students or through the culture of scientific reasoning of its teachers, which inevitably enriches methodologies. **The internship and dissertation models** are also a guarantee that students have contact with research, either directly by participating in projects or indirectly through the mandatory bibliographical search for writing the dissertation.

Annual **CIISA' Congress** allowed for research results dissemination, contributing to research-based education and to engage students in research projects. Since 2023, the CoLab **All4Animals** has organized two annual congresses on their different research lines.

The SC has the overall responsibility for ensuring that teaching is research-based and that the students have contact with research.

10.4.2. Description of how and by who research, continuing and postgraduate education programmes organised by FMV are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

Research: The SC is the body responsible for FMV's scientific policy, in respect with ScC strategic options and Dean and PC functions. CIISA, with SC President in its Coordination Committee, is responsible for developing and coordinating R&D activities. The main research areas and strategies are regularly discussed, decided, assessed, and revised by CIISA's bodies (Coordinator, Coordination Committee, and Scientific Council), in particular when the plan for next year is prepared and proposed to SC. These decisions are communicated (by e-mail) to all CIISA members, including FMV teachers and researchers, students, and stakeholders through CIISA's website (<https://ciisa.fmv.ulisboa.pt/>).

Postgraduate education programmes: Masters and PhD programmes are internally discussed and approved by the SC, with favourable opinions from the PC and Dean, and are then centrally discussed and approved in the scientific subject section of ULisboa Senate. If approved, they are submitted to A3ES, which confirms whether the proposal meets the requirements defined in the law and has the necessary conditions for proper functioning.

FMV collaborates in **several programmes involving other schools of ULisboa**: (1) bachelor's and master's degree in Zootechnical Engineering through a joint organization of FMV and ISA, (2) master degree in Microbiology with 3 other schools, (3) master's degree in Equine Sciences with other 2 schools, (4) PhD degree in Sustainability Science – Resources, Food and Society with 11 other schools and (5) PhD in Planetary Health Science with other 17 schools. However, FMV's major PhD programme is the **PhD in Veterinary Sciences (DVS)**, fully organized by FMV, in the



specialties of Clinics, Animal Health, Animal Production, Food Safety, and Biological and Biomedical Sciences. This study programme is monitored by a scientific committee, chaired by a teacher appointed by the SC President, and also including a teacher with a doctoral degree from each scientific area of FMV.

The **Scientific Committee has the competences** described in DVS' Regulation, including:

- a) Evaluate the programme operation, ensuring that objectives are met, including the quality of teaching and students' acquisition of skills,
- b) Coordinate and harmonize the US syllabus of the doctoral programme,
- c) Propose to SC any changes to the study programme or the rules of its operation,
- d) Evaluate student performance and attainment of objectives, through year reports submitted by students and their supervisors,
- e) Evaluate new PhD student proposals, based on PhD program, adequacy of supervision and facilities, and availability of funding.

Postgraduate programmes are communicated by official organizations such as the General Directorate of Higher Education - Ministry of Education, Science and Innovation, ULisboa, and FMV, through their websites, and are also advertised in Press special issues regarding Graduation Courses. Postgraduate programmes are implemented, assessed, and revised by SC and PC.

Continuing education programmes: Continuing education programmes are discussed in the SC and implemented through the departments, which organize the annual offer of courses and stimulate teachers and researchers to bring up new courses, in collaboration with students and external organizations like scientific societies, professional organizations, and *Alumni*. Continuing education programmes are advertised on the FMV website and by e-mail to stakeholders and customers.

As stated above, the training of **interns and residents** was implemented in 2019, as part of a strategy to boost VTH dynamics and more specialized services, important for the attraction of more referral cases and, thus, contributing to improve training quality. Currently, there are nine EBVS/ABVS specialists in FMV (one in Internal Medicine of companion animals, one in Surgery of large animals, one in residents, two in Bovine Health Management; one in Dental, two in Veterinary Microbiology, and one in Animal Welfare and Behavioural Medicine) and eight active residencies.

The opening of **internships in the VTH** was also considered important within the scope of the training sequence after graduation and for the dynamics of the VTH. Interns are hired for one year, specifically for a certain area (see Table 10.3.1.) of the VTH, and work and learn under the supervision of a senior veterinarian with an increasing degree of autonomy.

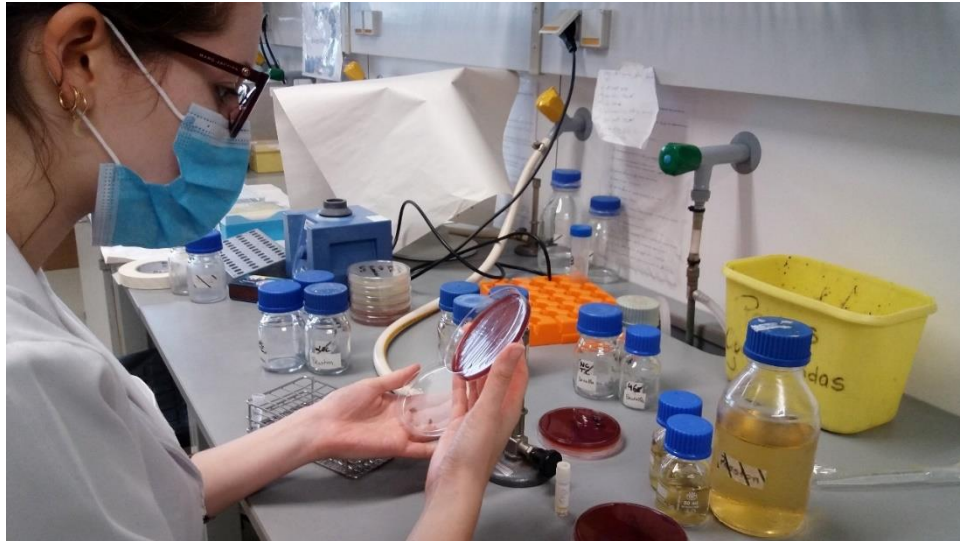
Given that both residents and interns are hired, it is necessary to find the respective financial support, which is partially covered by the revenue they generate, especially the residents.

10.2. Comments on Area 10

As stated above, FMV aims to promote an adequate research-based medical teaching and training to enable students to prevent diseases, to diagnose and treat sick animals, to contribute to a sustainable animal production, to protect humans from zoonosis and to ensure high-quality animal products for human consumption. Therefore, **the role of CIISA is crucial to make students aware of the importance of research in knowledge development and of continuous learning to become a competent veterinarian**, namely for evidence-based Veterinary Medicine.

10.3. Suggestions for improvement

The **attraction of more funding** to support and develop research and the **appointment of young researchers** to stimulate new lines of interest are undoubtedly two essential pillars for the future of FMV and the quality of its teaching and graduates.



**ESEVT INDICATORS****Factual information****Comments and suggestions for improvement on the Indicators**

	Raw data from the last 3 complete academic years	2020-21	2021-22	2022-23	Mean
1	n° of FTE teaching staff involved in veterinary training	106.12	113.82	125.34	115.43
2	n° of undergraduate students	837	847	853	845.67
3	n° of FTE veterinarians involved in veterinary training	102.72	110.77	120.34	111.28
4	n° of students graduating annually	99	97	112	102.7
5	n° of FTE support staff involved in veterinary training	106.1	113.8	126.3	106.1
6	n° of hours of practical (non-clinical) training	1068.5	1068.5	1068.56	1068.5
7	n° of hours of Core Clinical Training (CCT)	672	672	678	674
8	n° of hours of VPH (including FSQ) training	348	374	309	343.7
9	n° of hours of extra-mural practical training in VPH (including FSQ)	15	15	18	16
10	n° of companion animal patients seen intra-murally	12073	13155	14280	13169
11	n° of individual ruminant and pig patients seen intra-murally	15	119	14	49.3
12	n° of equine patients seen intra-murally	277	296	326	299.7
13	n° of rabbit, rodent, bird and exotic patients seen intra-murally	155	155	164	158.0
14	n° of companion animal patients seen extra-murally	0	0	0	0.0
15	n° of individual ruminants and pig patients seen extra-murally	5008	3049	3032	3696.3
16	n° of equine patients seen extra-murally	268	197	378	281.0
17	n° of rabbit, rodent, bird and exotic patients seen extra-murally	0	0	0	0.0
18	n° of visits to ruminant and pig herds	192	165	145	167.4
19	n° of visits to poultry and farmed rabbit units	5	5	5	4.7
20	n° of companion animal necropsies	324	347	384	351.7
21	n° of ruminant and pig necropsies	124	77	42	81.0
22	n° of equine necropsies	17	6	21	14.7
23	n° of rabbit, rodent, bird and exotic pet necropsies	183	221	227	210.3
24	n° of FTE specialised veterinarians involved in veterinary training	6.5	5.5	8.5	6.8
25	n° of PhD graduating annually	5	7	7	6.3



	Calculated Indicators from raw data	VEE values	Median values ¹	Minimal values ²	Balance ³
I1	n° of FTE teaching staff involved in veterinary training / n° of undergraduate students	0.136	0.15	0.13	0.010
I2	n° of FTE veterinarians involved in veterinary training / n° of students graduating annually	1.084	0.84	0.63	0.454
I3	n° of FTE support staff involved in veterinary training / n° of students graduating annually	1.003	0.88	0.54	0.463
I4	n° of hours of practical (non-clinical) training	1068.5	953.5	700.69	367.9
I5	n° of hours of Core Clinical Training (CCT)	674	941.6	704.8	-30.8
I6	n° of hours of VPH (including FSQ) training	343.7	293.50	191.80	151.9
I7	n° of hours of extra-mural practical training in VPH (including FSQ)	16.0	75.0	31.8	-15.80
I8	n° of companion animal patients seen intra-murally and extra-murally / n° of students graduating annually	128.3	67.37	44.01	84.3
I9	n° of individual ruminants and pig patients seen intra-murally and extra-murally / n° of students graduating annually	36.5	18.7	9.7	26.7
I10	n° of equine patients seen intra-murally and extra-murally / n° of students graduating annually	5.65	5.96	2.15	3.51
I11	n° of rabbit, rodent, bird, and exotic seen intra-murally and extra-murally/ n° of students graduating annually	1.5	3.1	1.2	0.38
I12	n° of visits to ruminant and pig herds / n° of students graduating annually	1.63	1.29	0.54	1.09
I13	n° of visits to poultry and farmed rabbit units / n° of students graduating annually	0.045	0.11	0.04	0.001
I14	n° of companion animal necropsies / n° of students graduating annually	3.425	2.11	1.40	2.025
I15	n° of ruminant and pig necropsies / n° of students graduating annually	0.789	1.36	0.90	-0.111
I16	n° of equine necropsies / n° of students graduating annually	0.143	0.18	0.10	0.043
I17	n° of rabbit, rodent, bird, and exotic pet necropsies / n° of students graduating annually	2.049	2.65	0.88	1.169
I18	n° of FTE specialised veterinarians involved in veterinary training / n° of students graduating annually	0.067	0.27	0.06	0.007
I19	n° of PhD graduating annually / n° of students graduating annually	0.062	0.15	0.07	-0.008
¹	Median values defined by data from VEEs with Accreditation/Approval status in May 2019				
²	Recommended minimal values calculated as the 20th percentile of data from VEEs with Accreditation/Approval status in May 2019				
³	A negative balance indicates that the Indicator is below the recommended minimal value				

The ESEVT indicators are overall positive and globally reflect the efficient activity of FMV and the effort to provide hands-on practical skills to its students. In general terms, effectiveness has been high since FMV has achieved its main mission, to train veterinarians in compliance with high standards of acknowledged quality, although the available financial resources are markedly below those accessible to other similar European institutions.

However, **4 indicators appear below ESEVT minimal values**, but they cannot be interpreted individually but rather combined with other indicators achieving the same goals. Particularly:

- **I5** - n° of hours of Core Clinical Training (CCT) - This indicator is slightly below the current minimum value but will be strongly increased to around 1000 hours with the implementation of the new study plan that will reserve most of the 5th year for clinical rotations.

- **I7** - n° of hours of extra-mural practical training in VPH (including FSQ) - This indicator was strongly affected by the restrictions imposed by COVID-19, which have not been fully reversed. We have already found new locations for student training such as animal product processing plants (FSQ) and pet shelters (VPH) that will begin to be used in 2024-2025.



- **I15** - n° of ruminant and pig necropsies / n° of students graduating annually - This indicator is also slightly below the minimum as it is increasingly difficult to access cadavers on farms. We are also making efforts to find new farms, especially for small ruminants and pigs.
- **I19** - n° of PhD graduating annually / n° of students graduating annually - The number of PhD graduates was also slightly below the minimum in these 3 years but will increase significantly with the increase in scholarships. As mentioned above (Table 7.2.5.), the number of doctoral students increased by 42.5% in these years, predicting a subsequent increase in graduates.



**GLOSSARY**

A3ES	Agency for Assessment and Accreditation of Higher Education
ACIVET	Association for the Development of Veterinary Sciences
AL4Animals	Associate Laboratory for Animal and Veterinary Science
BICU	Biological Isolation and Containment Unit of FMV
CAH	Companion Animals Hospital of the VTH
CBL	Case-based learning
CIISA	Centre for Interdisciplinary Research in Animal Health
CIQA	Committee on Internal Quality Assurance (of EAEVE)
CQA	Council for the Quality Assurance of FMV
CSTC	Clinical Skills Training Centre
DC	Department of Clinics
DGAV	National Authority for Animal Health and Feeding
DMF	Department of Morphology and Function
DPASA	Department of Animal Production and Food Safety
DSA	Department of Animal Health
EAEVE	European Association of Establishments for Veterinary Education
EBVS	European Board of Veterinary Specialisation
ECCVT	European Coordination Committee on Veterinary Training
ECOVE	European Committee of Veterinary Education
ECTS	European Credit Transfer and Accumulation System
EH	Equine Hospital of the VTH
ENQA	European Association for Quality Assurance in Higher Education
EPT	External Practical Training
ESEVT	European System of Evaluation of Veterinary Training
ESG	Standards and Guidelines for Quality Assurance in the European Higher Education Area
ExCom	Executive Committee (of EAEVE)
EZN	Zootechnical National Institute
FCT	Foundation for Science and Technology
FenixEdu	Academic management electronic system
FMV	Faculty of Veterinary Medicine of ULisboa
FPAH	Food-Producing Animals Hospital of the VTH
FSQ	Food Safety and Quality
FTE	Full-Time Equivalent
FVE	Federation of Veterinarians of Europe
IMVM	Integrated master in Veterinary Medicine of FMV
CTC	IMVM curricular traineeships Committee
ISA	School of Agriculture of ULisboa
ISQA	Integrated System of Quality Assurance
IT	Information Technology
MC	Management Council of FMV
MRI	Magnetic Resonance Imaging
PBL	Problem-based learning
PC	Pedagogic Council of FMV
PRRP	Portuguese Recovery and Resilience Plan
QA	Quality Assurance
QVET	VTH electronic patient record system and data management
SC	Scientific Council of FMV
ScC	School Council of FMV
SER	Self-Evaluation Report
SOP	Standard Operating Procedure
SPC	Scientific and Pedagogic Coordinator of a unit of study
SWOT	Strengths, Weaknesses, Opportunities, Threats
UL	Lisbon University – before de merge with UTL
ULisboa	Lisbon University – after de merge between UL and UTL
US	Unit of study
UTL	Technical University of Lisbon (extinct in 2013)
VPH	Veterinary Public Health
VTH	Veterinary Teaching Hospital
WOAH	World Organization for Animal Health



LIST OF APPENDICES

- 1 Strategic Plan
 - 2a Quality Policy
 - 2b Quality Manual
 - 2c Quality Plan
 - 2d List of QA Indicators
 - 3 ULisboa Disciplinary Students Rules and Regulations, Code of Conduct and Good Practice, and Charter of Rights and Guarantees
 - 4 Units of study of the core veterinary programme: title, reference number, ECTS value, position in curriculum, whether it is compulsory or elective, hours and modes of instruction, learning outcomes and their alignment with the ESEVT and FMV Day One Competences
 - 5a Maps of FMV and the intra-mural facilities used in the core veterinary programme
 - 5b Maps of extra-mural facilities used in the core veterinary programme
 - 6 Manual for biosecurity, health and safety
 - 7 Competencies of the masters in Veterinary Medicine
 - 8 IMVM' Regulation
 - 9 Traineeship agreement
 - 10 Proposal for a new veterinary medicine programme curriculum
 - 11 Clinical Skills Training Center - Regulations, Stations and Equipment
 - 12 Regulation for the Assessment of Knowledge and Competencies and Admission to the Final Exam of the 1st, 2nd and 3rd Study Cycles at FMV-Lisboa
 - 13 Logbook
 - 14 Current academic staff, qualifications, their FTE, teaching responsibilities, and departmental affiliations
 - 15 Programme for the appraisal of academic and support staff
 - 16 Research projects with competitive funding on-going in the last three years
 - 17 Scientific publications from the FMV's academic staff in peer-reviewed journals in the last three years
 - 18 PhD and master thesis in the last academic three years.
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