



UNIVERSIDAD
COMPLUTENSE
MADRID

Facultad de Veterinaria



Self-Evaluation Report

EAEVE Visitation

Madrid, 2017



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This Self-Evaluation Report was approved by the Faculty Council (19th January 2017)

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Introduction





Introduction

Brief history of the Establishment and of its previous ESEVT Visitations

The Veterinary Faculty of Madrid (FVM) maintains its status as a public administrative body dependent on the Complutense University of Madrid (UCM), one of the oldest and most prestigious Universities in Europe. Veterinary Studies in Spain were made official through the foundation of the Royal Veterinary School established in Madrid in 1792, and given the Status of Higher Education in 1923. The School was integrated in the UCM in 1943 to become the Faculty of Veterinary. In 1968, the FVM moved to its present location on the University Campus (<http://veterinaria.ucm.es/historia>).

In October 1993, the FVM was visited for the first time by a team of experts designated by the European Association of Establishments for Veterinary Education (EAEVE). The team made some suggestions regarding major deficiencies, and a follow-up visitation was carried out in 1998, when our Establishment was successfully evaluated. In 2006, the FVM obtained again the EAEVE- approved status. Since then, many changes affecting the organisation, study programme, facilities and management have been introduced taking into account the comments of the Expert Group that visited our Faculty at that time, and the legal changes regarding veterinary education established during the last decade.

Main features of the Establishment

The FVM and the Veterinary Teaching Hospital (Hospital Clínico Veterinario, VTH) are **strategically located**. The clinical assistance is highly recognised by the public and the veterinary professionals, which allows a steady and adequate caseload, needed for the hands-on practical and clinical training of the students. It is based in a fluent relationship with the Official College of Veterinary Surgeons of Madrid (COLVEMA) and with Private Professional Associations and Public Entities. A representative of the FVM participates in the Governing Board of COLVEMA, and a Professional Orientation Office attended by COLVEMA is placed in our Establishment to advise students on their future employment.

The **qualification of our staff**, in terms of both quality teaching and research, is noteworthy, being the 2nd-3rd out of the 26 Faculties of the UCM in terms of fundraising from research projects.

The presence of **highly motivated students** with a good academic background is one of the most significant strengths of our Establishment. The good relationship between students, academic and support staff allows a friendly environment for learning and education.

These features could explain the presence of the FVM in the Top 50 of the QS World University Ranking by Subject (Veterinary Science), ranked No. 50 in 2014, and No. 43 in 2015.

Main developments since the last Visitation

A. Main organisational changes

Different organisational changes have happened since the last visitation. The FVM has started to be an active member of the **Moncloa Campus of International Excellence (CEI)**, founded in 2010 as a joint initiative of the Complutense and the Technical Universities of Madrid, together with other institutions located in the Campus, such as the Spanish National Research Council (CSIC) and the National Institute for Agro-Food Research (INIA). Specifically, our Faculty is integrated in the thematic cluster “Agro-Food Industry and Health”. The main purpose is to transform the Moncloa Campus into an international reference regarding research, education and innovation taking account One Health concept.

On the other hand, as recommended by the EAEVE team in the last visitation, a **Quality Assurance System (QA)** was implemented during the course 2010/2011. This System included the constitution of a Committee for the Assessment and Improvement of the Veterinary Degree Curriculum.

The FVM has also established a Biosecurity Committee in order to review and publish operational policies and procedures, and to train and to inform all the members of the Establishment on biosecurity issues.

As suggested in the report of the last EAEVE visitation, an **Official Regulation of the VTH** was published in 2007 in order to give the VTH delegated authority and autonomy to deal with issues that are primarily an internal Hospital responsibility (<http://pendientedemigracion.ucm.es/bouc/pdf/684.pdf>).

Finally, an Ethics and Animal Welfare Committee has been set up to follow the basic standards for the protection and welfare of animals used for experimental and other scientific purposes, including teaching.

B. Main changes in finances

The crisis of the last years has had direct consequences on the funding for the Degree in Veterinary. Expenditures have increased on the basis of the consumer price index. However, revenues have been significantly reduced. The cutbacks from the public bodies have led to the impossibility to increase our human resources and to improve the infrastructures needed to adapt the studies to the ideal requirements of the European Higher Education Area.

C. Main changes to the curriculum

Many changes to the curriculum have been derived from changes in teaching regulations. In December 2001, the Spanish Parliament approved the University Organic Law 6/2001 which was modified in April 2007 (University Organic Law 4/2007, LOMLOU) in order to adapt it to the European Higher Education Area. The specific conditions that must be included in the programmes, and the requirements for qualifications to practice as veterinarians have been detailed in the Spanish Law

(Resolution 21 of December 2007 and Order ECI/333/2008). The Veterinary Degree in the Spanish Universities comprises 300 ECTS delivered over 5 years. Taking into account these specific conditions, the Royal Decree 96/2014 has recognized the Veterinary Degree as equivalent to **Master's level** (Spanish Framework for Qualification for Higher Education, MECES, level 3).

Accordingly, the **curriculum** of FVM has been profoundly **renovated**, following also the EAEVE recommendations. The new syllabus received the verification of the Spanish Agency for Quality Assessment and Accreditation (ANECA, ENQA member) in 2010 (BOE, Spanish Official Bulletin, 11 of November, 2010). This programme was started during the academic course 2010/2011.

The main changes in the new curriculum include most suggestions of the last EAEVE report:

- A significant increase of clinical training, including a hands-on clinical rotation period in the last semester.
- A decrease in animal production training in comparison to the previous syllabus.
- The inclusion of rotations in food hygiene and safety, and in animal production.
- The inclusion of a Graduation Thesis to be presented by the student at the end of the Degree.
- A systematic inclusion of self-directed learning in most Degree subjects.

Moreover, the syllabus has been carefully revised in order to allow the acquisition of the ESEVT "Day One Competences", and the OIE recommendations on the Competences of graduating veterinarians ("Day 1 Graduates") to assure quality for the National Veterinary Services following the "One Health" philosophy.

D. Main changes in facilities and equipment

The most significant changes in facilities and equipment since the last visitation are:

- Opening of a new Pilot Food Processing Unit (FPU).
- Opening of a Magnetic Resonance Imaging (MRI) Service and Computerized Radiography at the VTH.
- Remodelling of Isolation Areas for Small Animals and Large Animals.
- Opening of a new clinic room for suspected cases of transmissible diseases, with direct access to the street, independent from the waiting room.
- Opening of a specific clinic room for Small Animal Oncology.
- Opening of a Waiting Room for Cats in the VTH.
- Renewal of VTH ceilings and Small Animal Admission Area.
- Adaptation of acoustic isolation among Small Animal Hospitalisation Areas to improve animal welfare.
- Opening of a riding arena for horse handling and a dog off-leash area.
- Adaptation of two boxes as farrowing rooms.
- Acquisition of specific equipment for semen freezing.
- Installation of access control measures to different areas (radiology, pharmacy, etc). Other areas of the VTH are projected.

- Progressive installation of air-conditioning systems, LED lighting and fire safety measures in different buildings, including the VTH.
- Division of 2 large classrooms into 8 new spaces for learning in small groups.
- Opening of new laboratories for practical lectures, new research laboratories, offices and animal facilities for the Department of Animal Health.
- Renovation of 4 laboratories (Toxicology and Pharmacology, Biochemistry, Zoology and Agriculture) for students in the Main Building.
- Remodelling of the dissection rooms, including a new extraction system in the Anatomy building.
- Opening of two spaces for students (Office for Student Orientation and Office for Student Representatives) and an outdoor resting area.
- Opening of a new seminar/computer room in the Main building.
- Installation of a new experimental Rabbit Unit on the Teaching Farm.
- Opening of a new classroom and laboratory for Animal Production in the Teaching Farm.
- Set up of biosecurity measures in the Teaching Farm.
- Creation of an integrated system of special waste management.
- Opening of VISAVET (Health Surveillance Centre), a centre for research support and teaching, which includes a Biosafety level 3 (BSL-3) laboratories, BSL-3 animal facilities, and a BSL-3 necropsy room.

Major problems encountered by the Establishment

In the past six years, Spain has suffered a dramatic international economic crisis, and the regional and national governments have reduced funding to public universities. The Veterinary studies are much more expensive than the average, including Human Medicine that is also supported by the Ministry of Public Health System. As a consequence, there has been a significant reduction of funding for our Faculty, which has made difficult the renewal of equipment and facilities.

On the other hand, when the data of the last EAEVE visitation are compared to the current situation, the FVM academic and support staff has slightly decreased. Due to the economic crisis, the Spanish Government has not allowed even the replacement of retired or deceased civil servants. Therefore, the promotion or recruitment of young, motivated and well-prepared personnel has been very difficult during the last decade. Our staff has made significant and plausible efforts to guarantee the quality of our learning process during this difficult situation.

Version and date of the ESEVT SOP which is valid for the Visitation: ESEVT 'Uppsala' SOP May 2016.

1.

Objectives and Organisation



1. OBJECTIVES AND ORGANISATION

1.1. Factual information

1.1.1. Details of the Establishment, i.e. official name, address, phone number, Email and website addresses, Establishment's Head, name and degrees of the person(s) responsible for the professional, ethical, and academic affairs of the VTH, official authority overseeing the Establishment

Name of the establishment: *Facultad de Veterinaria. Universidad Complutense de Madrid*

Address: *Avda. Puerta de Hierro s/n, Ciudad Universitaria. 28040 Madrid*

Telephone: *00 34 91 3943884*

Fax: *00 34 91 3943883*

Website: <http://veterinaria.ucm.es>

E-mail: *decvet@ucm.es*

Title and name of head of the establishment: *Pedro L. Lorenzo González, DVM, PhD*

Is the establishment within a university?: *Yes*

Address of the university: *Universidad Complutense de Madrid (UCM). Campus de Ciudad Universitaria. 28040 Madrid, Spain*

Title and name of responsible for VTH (professional, ethical): *Consuelo Serres Dalmau, DVM, PhD*

Title and name of responsible for Academic Affairs in VTH: *Dr. Pedro L. Lorenzo González (Dean)*

Competent authority overseeing the establishment: *Ministry of Education, Culture and Sport, and Education Cancellery of the Autonomous Community of Madrid*

1.1.2. Summary of the Establishment Strategic Plan with an updated SWOT analysis, the mission and the objectives

The Strategic Plan (fully described on the website: <http://veterinaria.ucm.es/plan-estrategico>, Annex 1.1.2) is initially based on the program that the Dean of the current Direction Board of the FVM presented to the Faculty Council in November 2011 (revised, updated and presented again to the Council in November 2015). This program contained a series of objectives and transversal themes of action, as well as specific lines for students, and academic and support staff.

The reflections expressed in the aforementioned document have served as a starting point to be redefined today on the basis of the new educational, economic and

social environment, which is the object of the present Strategic Plan (2017-2020), approved by the Faculty Council in December 2016.

Mission Statement

Assuming the general objectives of the UCM as their own (<http://www.ucm.es/laucm>), and having as priority the achievement of the standards established by the QA System of the FVM, our Mission as a Centre of Higher Education is **to train professionals of quality and prestige, who seek to preserve the health of animals and the population, and the conservation of the environment.**

Vision

To guide Veterinary Education to society demands, by providing effective teaching, developing advanced research and offering quality community assistance.

Values

- Commitment with our students and the society in general.
- Ethical commitment with interest and respect for animal welfare and nature.
- Constant search for excellence and quality from innovation and analysis of the needs and expectations of society.
- Teamwork, encouraging the participation of all parties to achieve common goals.
- Collaboration with our environment and with other centres and institutions at national and international level.
- Integrity, responsibility, ethics and transparency in our actions.
- Identification with the institutional values of the UCM, such as democratic participation, merit, equality and capacity.





SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Long historical tradition, with national and international reputation and prestige. • Excellent geographic location and transport infrastructure. • High demand for our Degrees compared to other universities. • High degree of motivation and involvement of our teaching staff, support staff and students, with high level of synergy between students and staff that allows the integral development of students. • Excellent student-to-teacher ratio. • High percentage of teachers with veterinary qualifications (81% of the total teachers), qualified and experts in their fields of knowledge. • High number of associate teachers in practical teaching. • VTH organised in services and with European Diplomas • High quality intra-mural practical training. • High quality extra-mural practical training related to large animal and food-producing animal clinics; highly valued by students. • Unique structures such as the Food Processing Unit, the Teaching Farm and the VISAVET Health Surveillance Centre. • Library with an extensive bibliographical collection and specialized scientific information. • High level of student engagement in extracurricular activities: student congress, associations, cultural activities, mentoring program. • Excellent relationships with related institutions, administrations, livestock companies and professionals in all clinical and health areas. • Active development of national and international exchange programs for students and teachers. • A QA System already implemented and optimally developed. • Use of information technologies in the training of students, academic staff and support staff. • Leadership in research resources, with high number of research groups of excellence and national and international reference. Proximity to advanced research centres and teams in all disciplines. • Membership of the Agri-Food and Health cluster of the Moncloa Campus of International Excellence (CEI-Moncloa). • Social recognition at local, regional and national level. 	<ul style="list-style-type: none"> • Lack of autonomy in the full management of the centre. • Financial situation of the UCM. Dependency on the endowment coming from the University, considering the high cost of the studies. • Insufficient budget to manage unique infrastructures. • Difficulty of expansion and improvement due to budget cutbacks. • Scarce management capacity of the Faculty in University expansion projects or investments. • Progressive increase in the average age of teachers (currently 53 years). • Insufficient interaction between clinical and basic science Departments. • Inadequacy and inefficiency of some infrastructures and difficulty for improvement. • Insufficient space for the improvement of the Teaching Farm. • Insufficient space for the Food Processing Unit. • Insufficient space for central service management areas. • High percentage of on-site teaching in some areas of knowledge. • Insufficient knowledge by the population about the work of the veterinarians. • Difficulty in internal and external communication. • Difficulty in optimising human resources and infrastructures for research. • Absence of a specialised support unit for the management of research and fundraising.



OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Leadership in Veterinary Education in Spain. • Improvement of educational programs and their adaptation to European regulations. • Promotion of the internationalization of the Degrees. • Implementation of specialised clinical services. • Increase of activity as a result of increasing numbers of pets. • Attracting talent for teaching and research. • Development of teacher training activities. • Promotion of a new model of budget allocation to the Faculties in the University. • Promotion of training for cultural proximity students (Latin America). • Development of new fields of activity: aquaculture, apiculture, etc. • Increase of permanent education offer in accordance with the demands of profession and society in general. • Promotion of the participation of the VTH, the FPU and the Teaching Farm in the improvement of postgraduate and permanent education. • Improvement of the connection among the Teaching Farm, the FPU and the Pathology Service of the VTH. • Membership of the CEI-Moncloa and proximity to the Technology Park to promote collaborations with related institutions. • Active participation in the plans of the agro-food industry (the first industrial sector of the Spanish economy). • Improvement of the efficiency of support services. • Enhancement of mobility actions for students and staff. • Improvement of plans for the safety of facilities, staff and students. • Improvement of the monitoring of the graduates employability. • Organization of the <i>alumni</i> association as an instrument for managing and reinforcing the identity of the FVM. • Increase of the offer of online and blended training. • Improvement of the visibility of the FVM and, in general, of the veterinary profession. 	<ul style="list-style-type: none"> • Reduction of economic resources. • Dependency on the distribution of funds from the University. • Excessive centralization of decision-making in university services (teaching, research and management). • Aging of both academic and support staff. • Competition with other Veterinary Faculties (high number of Faculties). • Increase in the cost of veterinary education. • Building deterioration. • Increase in the maintenance needs of the infrastructures: VTH, FPU, Teaching Farm, laboratories, etc. • Reduction of the cattle census. • Shortage of specialized support staff in teaching tasks. • Situation of uncertainty with the proposal of new organisation for Departments and Faculties in the UCM.

Strategic themes and objectives

1. - Teaching

- To review the learning programmes in the adaptation of the Degrees to the European Higher Education Area.
- To educate leaders in the veterinary profession (public health, clinical practice, animal production, food safety, environment, administration).
- To improve human and material resources.
- To prepare the FVM for National Accreditations.
- To prepare the FVM for the EAEVE Accreditation.

2. - Research

- To increase research activities.
- To improve research infrastructures.
- To lead quality research.

3. - Management and support services

- To ensure improvements in the infrastructures and sufficient, sustainable and sustained funding in the future.
- To promote an integral improvement of the management and services of the FVM.
- To promote the welfare of staff and students.

4. - Societal impact

- To advance in animal health and welfare, public health, and the conservation of the environment.
- To increase the social awareness of the professional activities of the Veterinarian and the FVM.
- To build solid partnerships in the field of veterinary education and agri-food with other faculties, and public and private institutions.



1.1.3. Summary of the Establishment Operating Plan with timeframe and indicators of achievement of its objectives

Table 1.1.3. Prioritisation of strategies for implementation*

STRATEGIES AND OBJECTIVES	Implementation
1.1.1. Review of the syllabus	Immediate
1.1.2. Promotion of the improvement of teaching-learning processes	Mid-Term
1.1.3. Encouragement of horizontal and vertical coordination of subject contents	Immediate
1.1.4. Development of practical training	Mid-Term
1.1.5. Promotion of official postgraduate studies	Immediate
1.2.1. Approach of the FVM to the professional reality	Mid-Term
1.2.2. Promotion of the continuing education	Mid-Term
1.3.1. Increase of human resources (academic staff)	Mid-Term
1.3.2. Increase of human resources (support staff)	Mid-Term
1.3.3. Improvement of teaching facilities (including VTH, FPU and Teaching Farm)	Immediate
1.4.1. Preparation of the FVM for the National Accreditations	Immediate
1.5.1. Preparation of the FVM Documentation for the EAEVE Accreditation	Immediate
1.5.2. Institutional support for the visits	Immediate
2.1.1. Increased internal knowledge of the FVM research activities in order to promote the collaboration among different research groups	Mid-Term
2.2.1. Creation and development of infrastructures for research	Long-Term
2.3.1. Fundraising	Long-Term
3.1.1. Increased and sustained budget revenue	Mid-Term
3.1.2. Improvement of marketing and public relation skills	Mid-Term
3.1.3. Optimization of organisational structures	Long-Term
3.2.1. Increase of quality commitment	Mid-Term
3.3.1. Establishment of programs to improve the welfare of staff and students	Immediate
4.1.1. Dissemination of the role of veterinarians in animal health and welfare, and public health, as well as the conservation of the environment	Long-Term
4.2.1. Promotion of joint actions with the Official College of Veterinarians and Professional Associations	Long-Term
4.2.2. Promotion of activities organised at the FVM	Immediate
4.3.1. Collaboration in veterinary actions	Mid-Term
4.3.2. Collaborations with livestock and agriculture institutions and industry	Long-Term

Immediate: under implementation or starting in less than 6 months; Mid-Term: between 6 and 12 months; Long-Term: over 1 year

*For detailed Operating Plan, Developed Objectives and Metrics, see Annex 1.1.2., Strategic Plan

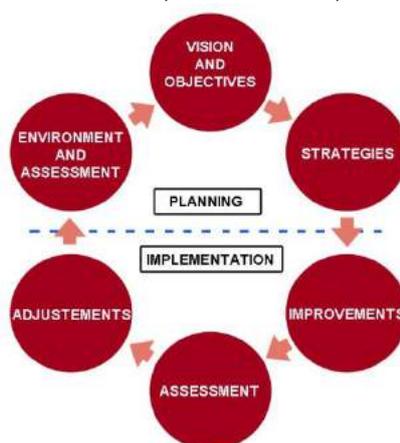


Figure 1.1. Elements of the operating plan

1.1.4. Organizational chart of the Establishment

The Complutense University of Madrid (UCM) is a Public University dependent on the Spanish Ministry of Education, Culture and Sport, and on the Government of the Autonomous Community of Madrid. Briefly, their 26 Faculties, and more than 180 Departments offer more than 70 official Degrees, about 180 postgraduate courses, and more than 50 PhD programs. Detailed information can be found in the website of the UCM (<http://www.ucm.es>).

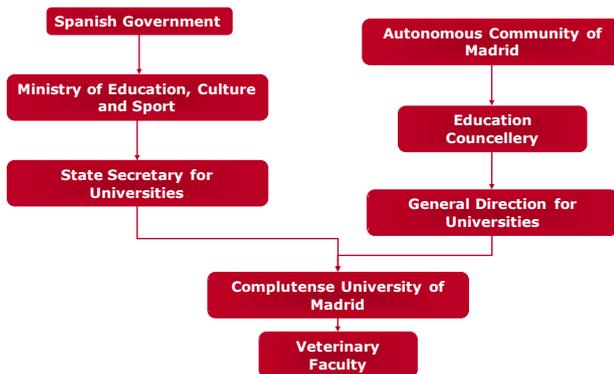


Figure 1.2. Administrative structure: Relationship of the Faculty with the University and Government bodies

The current legislation establishes that the Universities are organised into two types of structures, with different functions:

- A. **Faculties:** Responsible for organising the teaching and the appropriate development of teaching activities.
- B. **University Departments:** Responsible for the teaching within the Department (as established by the Faculty Council), and for the research activity at postgraduate level.

The Veterinary Faculty of the UCM is primarily governed by the UCM Statutes (2016), which stipulate the composition and structure of the governing bodies of the Faculty and define the functions of the institution. The governing bodies defined in the UCM Statutes are the Dean, the Dean's Office and the Faculty Council.

- The Dean represents the Faculty and acts as Director and day-to-day Manager. The Dean is elected by the Faculty Council from the tenured academic staff of the Faculty for four-year terms. One re-election is possible.
- The Dean's Office includes: five Vice-Deans with delegated functions related to specific academic activity areas, the Academic Secretary, who acts as notary for the acts or agreements of the collegiate bodies, and the Manager responsible for the Faculty's administrative and financial services. Vice-Deans and Academic Secretary are nominated by the Dean for his term. The official appointment is made by the Rector. There are also four Dean-Delegates, in charge of the coordination of the IT-Services, Food Science and Technology Degree, Mobility, and Coordination with VTH and Teaching Farm. The Dean manages the main

academic areas and ensures the relation between study programs and research. The Dean performs his tasks in close collaboration with the Faculty Management and by delegating responsibility to the Vice-Deans and the Heads of the Departments of the different areas.

- The Faculty Council is the management and governing body of the Centre. It is composed by members representing all levels of the Institution. It is chaired by the Dean and renewed every four years. The native members of the Council are the Dean's Office, the Heads of the different Departments and the Director of the Library; the elected members include representatives of the tenured academic staff (58% of the Council), representatives of hired teaching, research staff and research scholars (12%), representatives of the support staff (5%) and student representatives (25%).

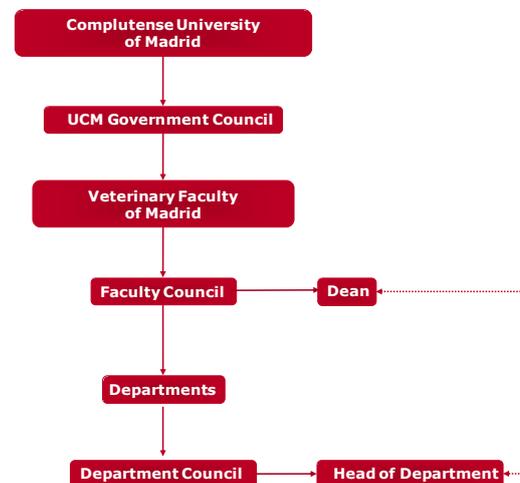


Figure 1.3. Organisation of the FVM



Figure 1.4. Organisation of the Dean's Office

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

The FVM organisation comprises Academic Departments, Management Structures, Faculty Council Committees, and the VTH.

Departments

The Departments are the bodies in charge of the coordination of the teaching of one or more knowledge areas in accordance with the teaching programme of the University, as well as of the support for teaching and research activities, and initiatives of the teaching staff. The different Departments are made up of areas of



scientific or technical knowledge, which in our Faculty has given rise to eight Departments, and one departmental section. All these Departments belong and are allocated in the Faculty and are responsible for the teaching of all subjects included in our syllabus.

The Department Council, chaired by the Head of the Department, is the governing body of the Department. It is made up of all the academic staff (Doctors) of the Department, and a representation of the rest of the teaching and research staff (70%); a representation of the students who are taking courses within the Department (25%), and a representation of the support staff assigned to the Department (5%). The Head of the Department acts as representative, and develops the functions of director and manager. The Head is elected by the Departmental Council for a four-year term and can only be re-elected once.

Department	Head (Prof. Dr.)
Anatomy and Compared Pathology	Pilar Martínez Sainz
Animal Health	Ana Doménech Gómez
Animal Medicine and Surgery	Fernando Rodríguez Franco
Animal Physiology	Juan Carlos Illera del Portal
Animal Production	Ignacio Arija Martín
Biochemistry and Molecular Biology IV	Antonio Puyet Catalina
Food Science and Technology	Gonzalo D. García de Fernando
Toxicology and Pharmacology	Antonio Rodríguez Artalejo

Management of FVM

In accordance with the Statutes of the UCM, the Faculty Manager acts as manager for the support staff. Next figure shows the services which are the responsibilities of the FVM Manager.

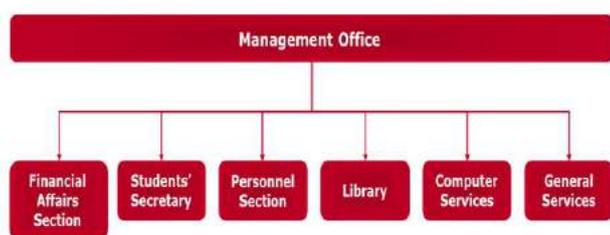


Figure 1.5. Organisation of Management Office

Committees of the Faculty Council: There are several Committees that advise the Dean and the Faculty Council (Figure 1.6). Although they have not decision-making functions (except the Permanent Committee), important issues cannot be put forward to the Faculty Council meeting agenda, unless they are previously prepared and discussed by the appropriate committee. Representation

of all the Faculty collectives in the different Committees is guaranteed (detailed information about structure of Committees is included in Annex 1.1.5.).

Permanent Committee of the Faculty Council: its function is to deal with day-to-day matters in the name of the Faculty Council.

Research Committee: Among its competences is the drawing up of scales and evaluation of candidates for the different research positions offered by the UCM as well as the evaluation of the scientific output of the different research groups of the Centre to distribute the financial assistance for research assigned by the UCM.

Mobility Committee: Its function is to support the mobility of the FVM members, especially the incoming and outgoing students. The Committee establishes the subject equivalences and credit transfers for those students who study abroad with Erasmus scholarships.

Committee for Transfer and Credit Recognition: Its competences are to establish the criteria and tables for credit recognition and transfer for those students who change their syllabus.

Biosecurity Committee: Its function is to define the protocols of action in relation to the Self-Protection Plan, to publish the Risk Plan Associated with Teaching, and to evaluate, to implement and to publish the protocols for specific facilities such as the VTH, the FPU and the Teaching Farm.

Postgraduate Committee: It manages all the issues related to postgraduate studies.

Financial Committee: Its responsibilities are the distribution of the budget and any other funding of the Establishment, and to draw up the criteria needed to carry out this distribution.

Library Committee: It manages the Library resources. Its duties also include recommendations for the acquisition of books, journals and different scientific, technical and teaching media.

Veterinary Museum Committee: It manages all the issues related to the Veterinary Museum.

Teaching Farm Committee: It manages all the issues related to the Teaching Farm.

Ethics and Animal Welfare Committee: It evaluates, advises and approves procedures to ensure the welfare of animals used for educational and research activities.

Quality Commission of the FVM and Committee for Assessment and Improvement of the Veterinary Degree Curriculum: Information is fully detailed in Chapter 11 and in Appendix 4. Input from external stakeholders is guaranteed through their participation in the QA system.

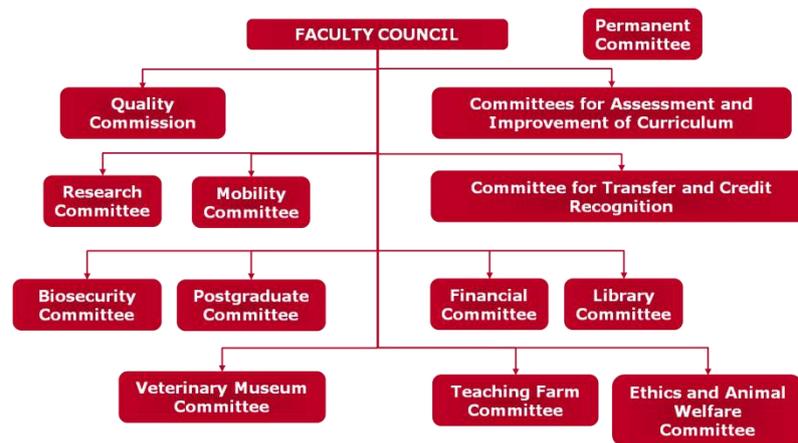


Figure 1.6. Delegated Committees associated with the Faculty Council

Veterinary Teaching Hospital (VTH)

The VTH carries out appropriate clinical and support tasks for teaching and research, in line with the current legislation. The organisational and functional regime of the VTH is governed by its own General Regulations. The current Hospital Council is chaired by the VTH Director. Its structure is:

1. *Ex officio* members: the Dean of the FVM, the VTH Director, the Head of the Department of Medicine and Animal Surgery, the Head of the Department of Animal Health, the VTH Secretary, the VTH Manager, the 3 Coordinators of the Small Animal, Large Animal and Central Services Areas, and the 14 Heads of the VTH Services (Small Animal Medicine, Small Animal Surgery, Hospitalisation and Intensive Care, Exotic Animal, Equine Medicine, Equine Surgery, Ruminant Medicine and Surgery and Other Animals Supply, Anaesthesia, Diagnostic Imaging, Clinical Pathology, Reproduction, Pathology, Infectious and Parasitic Diseases, and Hospital Pharmacy).

2. Elected Members: 2 representatives of the VTH support staff, one among the official staff and another from the workforce, 2 students, 2 hospital training staff representatives (interns or residents), one for each clinical area.

1.1.6. Description of how and by who the strategic plan and the organisation of the Establishment are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

Procedures involve the following steps:

- Evaluation and identification of priority objectives (interviews to students, staff, stakeholders)
- Construction of strategic themes (Responsibility: Dean's Office and Faculty Council)
- Definition, communication and approval of strategic themes (Responsibility: Faculty Council)
- Connection with other improvement plans (University, Autonomous Community, Country)
- Assignment of committees to assess improvements (Responsibility: QA Committees)

- Assessment of improvements (Responsibility: QA Committees)
- Implementation and plan adjustment: communication of results (Responsibility: QA Committees and Faculty Council)
- Reports to/from QA external agencies (Responsibility: QA Committees and Faculty Council)
- Implementation and plan adjustment: reassessment and redefinition of objectives (Responsibility: Dean's Office and Faculty Council)
- Over the whole process, communication via email, web, social networks, COLVEMA, etc. (Responsibility: Dean's Office)

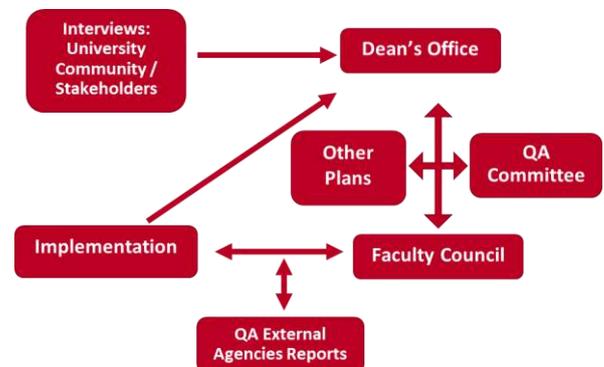


Figure 1.7. Agents involved on the Strategic Plan

1.2. Comments

The objectives of the FVM do not show major changes over the years, although creation of Strategic Plans since 2011 improves the achievement of goals and clarifies the future improvement. Since 1987, the Faculty is organised in eight Departments. The Departments have a significant degree of autonomy with respect to financial and administrative matters. Each Department is responsible for its teaching and research programmes.

At University level, achievement of the general and specific objectives is assessed and followed up by the UCM Social Council. This independent Council has studied the professional insertion of promotions from our Faculty (1994-1999, 1995-2000, 1996-2001 and 2004-2009). In these studies, a special insight into the

labour market description and requirements, and the training provided to the graduates was made.

The UCM is now involved in a considerable reorganisation of Faculties, Departments and administrative units. No significant changes are expected concerning the FVM, other than reduction of the number of Departments and/or administrative units.

1.3. Suggestions for improvement

It would be positive to give more autonomy to the FVM and VTH Governing bodies for decision-making in some areas that are still very dependent on Central University Bodies (like staff hiring or financial management), which many times delays actions to undertake.

In particular, the VTH Board suggests that the creation of some type of organisation and/or cost centre for the clinical activities and University Hospitals could be a good measure to enable more cost-effective operating procedures.

The implementation of the strategic plan will be carefully designed to allow a strict follow-up. Also, this plan needs support by the UCM Government Council. By assuming the importance of well-trained veterinarians in society, the endowment of the FVM should be increased, resulting in decreased workload of teachers, increased staff number (both teaching and support), increased funding for research, and improvement of infrastructures.



2. Finances

$M = 24.666$
~~1999.666~~
 $\frac{N}{2} = 17.85185185$
 $-17.85185185 + \sqrt{318.6}$
 $\frac{14402}{22096405} = 29.572$
 $\frac{5185}{19662671} = 2.27$





2. FINANCES

2.1. Factual information

2.1.1. Description of the global financial process of the Establishment

The University Organic Law 6/2001 and 4/2007 (LOMLOU) states that the economic and financial autonomy of the Universities are a fundamental issue. In this context, article 2.2.h configures as an essential right of each University the autonomy in the planning, approval and management of its budget, and the administration of its assets (Economic and Financial Management Regulation, UCM).

The FVM and VTH, as other UCM Centres, have a peculiar financial system, since the most important areas of expenditure, namely staff costs, services and work contracted out to external companies, maintenance services, waste collection and others, are managed and paid directly by the UCM Central Services (Rectorate), while the FVM and VTH only receive those services and goods.

As a result, two main types of expenditure are differentiated in the FVM and VTH:

- **Expenditure directly managed by the FVM/VTH.** Funded with revenues included in Sections B, H, and J of Table 2.1.2 for the FVM, and Sections D and E for the VTH.
- **Expenditure managed by the UCM Central Services.** Funded with revenues in Section A of the Table 2.1.2.

The budget of the UCM is annual, per calendar year (from January 1st to December 31st) and not per academic year (from October 1st to September 30th). Initial approval (project stage) is given by the Governing Council of the UCM which then submits it for the final approval to the UCM Social Council. In 2016, the budget of the UCM was 538,481,041.77 €, with the estimated total costs financed from the following income sources:

- “Fees, public prices and other income” (fees and public prices are decided by the Autonomous Community of Madrid): 27.32%
- “Capital transfers” (to finance capital and investment expenditure): 10.97%.
- “Ordinary transfers ” (to finance ordinary expenses): 60.94%
- Others (patrimonial income, financial liabilities): 0.67%

The Faculties of the UCM receive from the Rectorate annual funds for direct management as envisaged in the Programme 2000, Education Management (*Programa 2000 “GESTIÓN DE LA ENSEÑANZA”*), to cover part of the so called *Ordinary Expenditure* on goods and services (those which are not provided by the Central Services of the UCM). The annual endowment for each Centre is calculated by means of a model in force since the year

2002, which is being reviewed to be updated in the next years. The total budget assigned to the Centres is distributed among them according to the following criteria and percentages:

- 31% is equally distributed among all the Centres.
- 4% is distributed according to the surface area of the Centres, evaluated on an ascending scale.
- 25% is distributed in proportion to the ECTS offered by each Centre.
- 40% is proportionally distributed according to the number of ECTS taught. What is considered here is the income obtained from the subjects in which students are enrolled, multiplied by the price of the credit depending on the experimental grading of each subject, as laid down annually by the Autonomous Community of Madrid. The Degree in Veterinary has the maximum experimental grading (level 1) and the ratio compared to studies with the lowest grading (level 3) is 1.22/1. This means that for the Degree in Veterinary, the FVM receives 1.22-fold per credit than, e.g., a Humanities Degree.

The annual amount assigned to the FVM in 2016 was 573,250.83 €. From the annual endowment, the Rectorate discounts the amount corresponding to the central acquisition/subscription of journals/books for the Library, and adds the income corresponding to the Permanent Education (Continuing Education and UCM Postgraduate courses) offered by the Centre (5% of the total budget of each course). Then, the real amounts that the FVM received in the last three years were:

2016	2015	2014
503,947.36 €	548,910.14 €	535,158.80 €

The model of distribution of the total amount received within the FVM has been updated in 2016, once the first cycle of the Degree in Veterinary was completed. The Faculty Council agreed 0.7% to be discounted for the Cooperation for Development Programme and to apply some general deductions for some centralized Faculty Services (Library, maintenance of animals for practical training, student associations, Veterinary Museum and others). Afterwards, 20% of the available amount is assigned to Central Services and 80% to the Departments. The distribution among the Departments is based on the following criteria:

- 25% is equally distributed among the eight Departments.
- 21.23% is proportionally distributed according to the lecture ECTS of each subject.
- 40% is proportionally distributed according with the practical ECTS multiplied by the total number of students enrolled in each subject.



- 13.77% is assigned to the Degree in Food Science and Technology.

The apportionment of the total budget available for the Degree in Veterinary in 2016 (503,947.36 €) was:

Cooperation for Development Programme (0.7%)	3,527.63 €
Variable Faculty Services	54,834.52 €
Central Faculty Services	89,117.04 €
Departments	356,468.17 €

The VTH is self-funded. It receives an annual endowment from the Rectorate which is based on 80% of the revenues from the clinical activities and diagnostic services carried out during the previous calendar year. This budget is used for equipment purchase and maintenance, salaries of interns or additional support staff, remodelling of the premises, etc. Since that amount usually does not cover the ordinary expenditure, the Rectorate usually increases the final endowment. On the other hand, the Rectorate pays the costs related with utilities (electricity, water consumption, heating, and cleaning services) and the salaries of the support staff originally budgeted when the VTH was opened. The total amounts received by the VTH in the last three years were:

2016	2015	2014
1,049,023.14 €	965,166.54 €	886,943.28 €

The apportionment of the budget of VTH in 2016 was:

Staff costs	320,524.06 €
Operating costs	502,338.08 €
Financial expenses	15,000.00 €
Equipment and investments	80,000.00 €
Scholarships	131,161.00 €

2.1.2. Degree of autonomy of the Establishment on the financial process

The degree of autonomy of the FVM/VTH on the financial process is very low since the main revenues and expenditures are directly managed from the Rectorate. The FVM and VTH only receive the annual budget which is distributed as explained in section 2.1.1.

The only income sources that can be considered as the Centre's own are the renting of facilities (classrooms and others), as well as the 5% of the fees from the Permanent education offer. Other income, such as that from research grants or projects, and 75% from the Permanent Education courses is managed by the project or course director to cover their own requirements and not the general requirements of the FVM/VTH.

2.1.3. % of overhead to be paid to the official authority overseeing the Establishment on revenues from services and research grants

Clinical work (VTH)	20%
Diagnostic/External Services (Art. 83 LOU)	20%/15%
Research Grants/Projects	21%
Permanent Education courses	20%

From the total income of each of those items, the Rectorate subtracts the percentage detailed above. The rest is assigned to the FVM, VTH or Coordinator of the Research Project/Service, either for specific end use or for managing at their choice.

2.1.4. Annual tuition fee for national and international students

There are no full fee students in our system. The Spanish model of University funding is decentralized by the Autonomous Communities, where the University education is essentially public and covers 90% of the total cost. The remaining constitutes the tuition fee of the so-called "standard student".

The annual direct cost for training a student in 2015/2016 was 19,890.06 €, obtained as the sum of the academic staff (A.1) and support staff (A.2) expenditures, teaching operating costs (B.2), and teaching equipment (D.1) as shown in Table 2.1.1, divided by the number of students enrolled in the Veterinary Degree (1,031 students).

The cost of each credit is annually established by the Autonomous Community of Madrid and depends on the experimental grading and the times the student has been previously enrolled in a subject. The Degree in Veterinary has the maximum experimental grading (level 1) and therefore the public prices are:

1st enrolment	2nd enrolment	3rd enrolment	4th and successive enrolments
29.70 €/ECTS	54.58 €/ECTS	102.33 €/ECTS	136.44 €/ECTS

As a result, the annual tuition fee for a national student in 2015/2016, EU student, or a non-EU student with the status of resident, who passed all the subjects the first time, was:

$$60 \text{ ECTS} \times 29.70 \text{ €/ECTS} = 1,782 \text{ €}$$

In accordance with the article 81.3 b of the LOMLOU, the Universities charge foreign students over 18 years old who do not have the status of residents (excluding students of Member States of the EU and those to whom the Community scheme is applicable) the fees corresponding to a fourth enrolment (136.44 €/ECTS).

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

All the costs directly paid by the Central Services of UCM have been included in Table 2.1.1 as sections A (Personnel, except A.1.2, A.2.2.2 and A.4, paid by the VTH), B.1 (Utilities), C (Maintenance costs), and D.2 (General equipment).



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

The amount of the planned major investments, already budgeted for the next year, will sum up over 300,000 €. The investments will be funded by the Rectorate and include the following main works:

- Teaching Farm:
 - General conditioning
 - Fences
- Classrooms:
 - Partition walls (Building-A)
 - Toilet remodelling (Building-A)
 - Elevator (Building-A)
 - False ceilings (Building-B)
- Remodelling of several sections of the VTH
- Self-protection plan
- Animal health zone
- Anatomy Department (Room A, Room B, an Dissection Room remodelling)
- Renovation of computer equipment

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

It is difficult to estimate the expenditures and revenues for the next years. Due to the severe economic crisis, the endowment has been cut back since 2011. We expect an increase in the endowment from the Rectorate, to balance a potential increase in the official consumer price index. An additional increase in the budget would depend on an extra income from the Autonomous Community of Madrid.

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

The FVM Financial Committee is composed by the Head of the FVM, the Manager, the Heads of the Departments and a student representative. This committee is in charge of proposing the distribution of the ordinary budget and

evaluating any other source of income, expenditures or investment proposed by the Departments to the Faculty Council. The Faculty Council subsequently approves the budget to be implemented. The Departments and the Faculty Council are responsible for communication to staff and students, as well as for the implementation and supervision of the budget, which is managed by the administrative units and the Financial Affairs Section of the FVM. Every year, the annual economic report is approved by the Faculty Council.

The VTH has a Financial Committee, composed of the Head of the VTH, the VTH Manager, and the Directors of the Service Areas; this committee decides, communicates and evaluates how the budget is distributed depending on the needs.

Any expenditure that exceeds the ordinary budget must be requested extraordinarily to the Financial Committee of the UCM to be approved. The Rectorate decides the infrastructure projects to be carried out and charged to the UCM's Annual Investment Plan, as well as the repair, maintenance or safety works which have to be undertaken because they are strictly necessary or urgent. A prioritised proposal of works needed by the FVM is sent to the UCM Rectorate on an annual basis. Final decisions are taken after the evaluation of the requests from all the Centres depending on budget availability.

In this context, the following works and investments were paid by the Rectorate and carried out in the FVM and VTH in 2016:

a) FVM		
a.1) External works (facades)		35,998.84€
a.2) Internal works (remodelling of Library, toilets...)		122,692.43€
a.3) Adaptation to regulations on safety at work and legalization works		90,757.86€
a.4) Other projects (roof, sewers...)		123,789.55€
b) VTH		
b.1) Internal works (remodelling)		121,596.41€
b.2) Heating, air conditioning		81,071.35€
b.3) Other projects (roof, sewers...)		104,841.65€



Table 2.1.1. Annual expenditures during the last 3 academic years (in Euros)

	Year ¹	2016	2015	2014	Mean
A	Personnel²	19,858,822.49	19,936,158.24	19,193,178.74	19,662,719.82
A.1	Academic staff	12,530,706.83	12,435,603.38	11,919,625.86	12,295,312.02
A.1.1	FVM	12,393,206.83	12,314,534.35	11,800,624.31	12,169,455.16
A.1.2	VTH	137,500.00	121,069.03	119,001.55	125,856.86
A.2	Support staff	6,574,279.55	6,730,978.84	6,443,403.68	6,582,887.36
A.2.1	FVM	4,367,963.33	4,491,399.31	4,287,841.15	4,382,401.26
A.2.2	VTH	2,206,316.22	2,239,579.53	2,155,562.53	2,200,486.09
A.2.2.1	Paid by the Rectorate	2,066,394.40	2,057,243.09	1,973,870.90	2,032,502.80
A.2.2.2	Paid by the VTH	139,921.82	182,336.44	181,691.63	167,983.30
A.3	Researchers	569,728.93	664,676.51	720,125.94	651,510.46
A.4	VTH internships	184,107.18	104,899.51	110,023.26	133,009.98
B	Operating costs	14,003,155.99	17,688,148.32	18,779,531.73	16,823,612.01
B.1	Utilities²	1,961,301.58	2,094,230.70	2,077,594.52	2,044,375.60
B.1.1	FVM	900,818.73	1,014,775.59	985,847.79	967,147.37
B.1.2	VTH	1,060,482.85	1,079,455.11	1,091,746.73	1,077,228.23
B.2	Teaching	1,059,344.86	1,082,373.34	1,006,653.73	1,049,457.31
B.2.1	FVM	580,929.21	619,136.16	604,275.70	601,447.02
B.2.2	VTH	478,415.65	463,237.18	402,378.03	448,010.29
B.3	Research³	10,898,750.22	14,432,317.78	15,620,461.57	13,650,509.86
C	Maintenance costs²	197,833.08	237,154.07	212,959.41	215,982.19
C.1	Air conditioning, elevators, fire extinguishers, gardening	83,759.33	79,226.50	74,821.91	79,269.25
C.1.1	FVM	41,278.80	44,252.10	39,126.51	41,552.47
C.1.2	VTH	42,480.53	34,974.40	35,695.40	37,716.78
C.2	Buildings	114,073.75	157,927.57	138,137.50	136,712.94
C.2.1	FVM	55,009.79	52,787.17	60,020.43	55,939.13
C.2.2	VTH	59,063.96	105,140.40	78,117.07	80,773.81
D	Equipment²	1,023,068.09	468,137.15	371,396.36	620,867.20
D.1	Teaching	342,320.00	127,713.62	83,853.89	184,629.17
D.1.1	FVM	262,358.71	95,749.91	39,054.05	132,387.56
D.1.2	VTH	79,961.29	31,963.71	44,799.84	52,241.61
D.2	General equipment	680,748.09	340,423.53	287,542.47	436,238.03
D.2.1	FVM	373,238.68	127,093.73	82,578.54	194,303.65
D.2.2	VTH	307,509.41	213,329.80	204,963.93	241,934.38
	TOTAL EXPENDITURE	35,082,879.65	38,329,597.78	38,557,066.24	37,323,181.22

¹ Calendar year (from January 1st to December 31st)

² Directly paid by the Central Services of UCM (except A.1.2, A.2.2.2 and A.4, paid by the VTH)

³ Research data of 2016 are updated at November 30th

Table 2.1.2. Annual revenues during the last 3 academic years (in Euros)

	Year ¹	2016	2015	2014	Mean
A	Public authorities	22,377,098.06	22,381,998.00	21,542,250.33	22,100,448.79
A.1	Academic staff	12,393,206.83	12,314,534.35	11,800,624.31	12,169,455.16
A.2	Support staff	6,574,279.55	6,730,978.84	6,443,403.68	6,582,887.36
A.2.1	FVM	4,367,963.33	4,491,399.31	4,287,841.15	4,382,401.26
A.2.2	VTH	2,066,394.40	2,057,243.09	1,973,870.90	2,032,502.80
A.3	Researchers	569,728.93	664,676.51	720,125.94	651,510.46
A.4	Utilities	1,961,301.58	2,094,230.70	2,077,594.52	2,044,375.60
A.5	Maintenance costs	197,833.08	237,154.07	212,959.41	215,982.19
A.6	General equipment	680,748.09	340,423.53	287,542.47	436,238.03
B	Tuition fee (standard students)	1,554,516.39	1,538,520.13	1,312,883.38	1,554,516.39
C	Tuition fee (full fee students)				
D	Clinical services	600,549.45	582,952.70	680,836.61	621,446.25
E	Diagnostic services	304,343.06	276,402.97	284,329.93	288,358.65
F	Other services				
G	Research grants	10,898,750.22	14,432,317.78	15,620,461.57	13,650,509.86
H	Continuing and Postgraduate Education	155,198.57	100,040.95	111,231.06	122,156.86
I	Donations				
J	Other sources (renting facilities)	46,315.41	45,025.53	22,841.84	38,060.93
	TOTAL REVENUES	35,936,771.16	39,357,258.06	39,574,834.72	38,289,621.31

¹ Calendar year (from January 1st to December 31st)

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

Year	Total expenditures	Total revenues	Balance
2014	38,557,066.24	39,574,834.72	1,017,768.48
2015	38,329,597.78	39,357,258.06	1,027,660.28
2016	35,082,879.65	35,936,771.16	853,891.51

The large difference between revenues and incomes is due to the tuition fees, which are collected and managed by the Rectorate and are not delivered in full to the FVM.

2.2. Comments

There is a strong dependency on the UCM funds, and during the last years there have been large budget cutbacks from the National and Regional Governments that have directly affected the FVM activity, limiting our possibilities of expansion and improvement. The degree of autonomy of the establishment in financial matters is low, the main obstacle being an excessive centralisation of the decision-making process regarding the University services (teaching, research and management).

The funding of the FVM is low to cover the day-to-day activity and clearly insufficient for investment. The annual endowment hardly covers the running costs (ordinary expenses such as telephone service, office supplies, laboratory materials, etc.), and the amount

available for inventory material (audiovisual equipment, vehicles, furniture, etc.) is very small. The budget available for capital expenditure is clearly insufficient, especially in a University with a long history like the UCM, where many buildings and infrastructures need remodelling.

The costs of the Degree in Veterinary are very high due to the large amount of practical training offered, which implies the maintenance of our unique facilities, such as the VTH, the Teaching Farm and the FPU. Although the Degree has been classified at the highest experimental grading, we consider that it is still not enough, and that there should be additional funding to cover the high cost of the practical work. For example the Faculty of Medicine of the UCM holds the maximum experimental grade because of its high practical teaching, but it

receives additional funding coming from the Public Health System. We consider that the UCM or another Public Institution should equally contribute to increase the funding for the FVM.

Researchers and Coordinators of Diagnostic/External Services think that the present percentage withheld by the University should be lowered, especially in the case of research projects, where it usually reaches 21%. Moreover, the budget cutbacks make it difficult to optimise human resources and infrastructures for research purposes, and there is not any specialized administrative support unit for research management and fundraising.

Finally, the set-up of a plan for the reorganisation of the UCM Departments and Centres, creates uncertainty in relation to the budget distribution in the next years.



2.3. Suggestions for improvement

We consider that a linear increase in the annual endowment from the Public financial sources is required, given the decrease in the budget during the last years. A new model for budget distribution among the Centres of the UCM is needed, and the FVM will encourage the revision of the present model. It would be desirable that the Centre could have a better management of the budget, and to implement financial sustainable systems for the whole Veterinary Campus. The FVM will request the official authorities for more funding given the peculiarities of the Degree in Veterinary.

To achieve a higher degree of autonomy for expenditure, there should be an improvement of external fundraising. The income from research projects, the collaboration with companies and entities in public and private sectors, permanent education programmes, and the provision of direct services to the public should be progressively promoted and reinforced in our Faculty, together with an improvement of administrative management.



3.

Curriculum



UNIVERSIDAD
COMPLUTENSE
MADRID

FACULTAD DE VETERINARIA



3. CURRICULUM

2.1. Factual information

3.1.1. Description of the educational aims and strategy in order to propose a cohesive framework and to achieve the learning outcome

The main aim of the Degree in Veterinary is that students acquire a deep knowledge and a sound practical training in the different areas of the veterinary profession. Specific aims are based on the European Directive 2005/36, and are included in the European Supplement to the Degree in Veterinary obtained in our Faculty. These aims will be achieved through:

- Acquisition of knowledge and necessary skills relative to veterinary basic sciences (88 ECTS), such as physics, biostatistics, chemistry, zoology and botany, biochemistry and genetics, anatomy, embryology and physiology, microbiology, immunology, epidemiology, pharmacology and toxicology.
- Acquisition of knowledge and clinical and sanitary skills (113 ECTS) relative to the diagnosis, prognosis, treatment and prevention of diseases affecting animals (including domestic, experimentation, exotic and wild animals) as well as zoonoses. Design of health policies and risk analysis.
- Acquisition of knowledge and skills in animal production (39 ECTS) related to the different aspects of control, management and advice to farmers, and food production companies and the exploitation of terrestrial, marine or fluvial resources of animal origin.
- Acquisition of knowledge and skills in food technology, hygiene and safety (24 ECTS) by the study, among other aspects, of the food production chain control, understood as a continuous process ranging from primary production to consumers, and ensuring traceability.
- The skills acquired in the previous 9 semesters will be applied in the 10th semester supervised practicals that bring students to the reality of the professional practice, including indoor (21 ECTS) as well as outdoor practical training (3 ECTS) in the private veterinary sector, public agencies, R&D laboratories, consulting, etc.
- Optionally (6 ECTS) the student will be able to acquire skills in laboratory animals, exotic animal clinic, aquaculture, veterinary history, environment, or laboratory clinical diagnosis.
- Training in communication of knowledge, conclusions and findings, both oral and written, by the preparation of practical or technical works in different subjects, review and research (Graduation Thesis- 6 ECTS).
- Acquisition of skills and abilities for continuous training and researching in a self-directed learning way.
- Training to provide veterinary scientific, technical and legal consultancy to individuals and entities.
- Ultimately, the acquisition of knowledge and skills to develop their activities in the different fields of the veterinary profession with ethics and rigor.

The current syllabus of Degree in Veterinary was planned following the corresponding regulations (section 3.1.2) and was verified by ANECA (ENQA member). This programme is implemented through coordination according to a pyramidal system at three levels: Degree coordination, Year coordination and Subject coordination. The system works as follows:

- In February, the Vice-Dean for Coordination (president of the Committee for Assessment and Improvement of the Veterinary Degree Curriculum) requests the Departments the names of each Subject Coordinator for the following academic year.
- The Subject Coordinators, together the teachers in charge of their contents and the student representatives establish the specific teaching requirements, according to the Degree Document approved by ANECA.
- The Degree and Year Coordinators receive each subject requirements and prepare the theoretical and practical teaching calendars.
- Subject Coordinators distribute teaching among their academic staff with the approval of the Department Council.
- The Faculty Council approves the complete teaching planning for the following course.

The coordination process is done both online and with a minimum of three on-site planning meetings.

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

The Veterinary Degree at the UCM is regulated by the European Directive 2005/36, transposed to Spanish regulations in the Royal Decree 1837/2008. The current curriculum (approved by ANECA on June 30, 2010) is in accordance with the National regulations that establish the curriculum conditions leading to qualification for the exercise of the regulated profession of Veterinarian (Resolution of December 17th, 2007, BOE of December 21th, 2007); (ECI/333/2008, of February 13th, BOE of February 15th, 2008). The Degree is included in the Registry of Universities, Centres and Titles (RUCT) of the Ministry of Education, Vocational Training and Universities (Ministry of Education, Culture and Sport), with code No. 2502088.

Since the implementation of the curriculum in 2010/2011, the Quality Office of the UCM requests and assesses the annual Self-Evaluation Report of the Degree (<https://www.ucm.es/estudios/grado-veterinaria-estudios-sgc>). In the academic year 2011/2012, the Degree was evaluated by the Regional Agency for Quality, Accreditation and Prospective (ACAP). Since the academic year 2015/2016, the Degree has been evaluated by the Fundación madrid+d, as a subsidiary of ANECA.

From implementation (academic year 2010/2011) to Accreditation (2016/2017), the curriculum has been in a



set-up period, and no substantial changes have been made to their contents and structure. The Committee for Assessment and Improvement of the Curriculum is responsible for collecting information from different sources, including satisfaction surveys of students and coordinators (see Chapter 11 and Appendix 4), to begin the process that would conclude with potential modifications of the syllabus in the academic year 2017/2018. To this end, information and improvement proposals will be analysed by the Quality Assurance System of the FVM. After approval by the Faculty Council, the subject coordinators will adjust the contents and schedule, and changes will be included in the modified syllabus, which as it is mandatory will be submitted to ANECA for verification.

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

For the development of the current syllabus, a system of committees was organised in which the subject coordinators held meetings to establish the corresponding programmes. Redundancies and omissions were avoided. Nevertheless, the Committee for Assessment and Improvement of the Curriculum and the Quality Commission strives to detect and correct the issues that may arise. There are several sources for detecting these issues, as fully explained in Chapter 11:

- Student representatives (*Delegación de Estudiantes*). Representatives maintain a very good relationship with both students and teachers. They are fully involved in improving teaching and directly transmit student concerns and suggestions. They participate in coordination and take part in the QA System.
- Complaint and Suggestion mailbox.
- Teaching follow-up meetings. This is one of the improvements proposed by the FVM QA System in the academic year 2010/2011. These meetings are held at two stages in each course. The first one, with the coordinators of the subjects; and the second one with students, teachers, coordinators, student representatives, the Committee for Assessment and Improvement of the Curriculum, and representatives of the Dean's Office.
- Satisfaction surveys by internal and external stakeholders.

With regard to overlaps, redundancies and omissions, the teachers of the different subjects hold meetings to coordinate the subject programmes, which are adjusted to avoid these issues. However, it is possible that different aspects of the same topic are addressed by different subjects, which can be sometimes misinterpreted by students as duplicity of contents. In general, all teachers try to impart their subjects without interfering in other disciplines and they are aware of the contents that the students receive in other subjects.

3.1.4. Description of the core clinical exercises/practical classes/seminars prior to the start of the clinical rotations

Since the new curriculum including a period of **Clinical Rotations has been implemented**, all the clinical subjects are taught focusing on the preparation for such practical training. Problem-solving teaching strategy is frequently used, especially in diagnostics oriented to decision-making in the area of animal medicine and surgery, through clinical exercises and seminars. Moreover, clinical training with healthy animals, cadavers, animal models and computer simulation is frequently used in different disciplines. Clinical learning is staggered and progressive, from Year 1 to Year 5 of the Degree.

During Year 1, teaching in veterinary legislation, forensic medicine and certification includes specific training in writing expert reports and other legal documents related to professional activities.

During Year 2, in the subject Propaedeutics, students perform physical examinations in healthy animals and in some animal models, both in small and large animals. Nosology and Physiopathology includes practical clinical pathology laboratory work, in order to perform and interpret several laboratory diagnostic tests, with subsequent discussion of clinical cases in seminars. In General Pathology, students receive practical training in necropsy techniques and histopathology.

During Year 3, the subject Clinical Pharmacology and Therapeutics provides students with the necessary knowledge of medical treatments to apply on the patients through different practicals, seminars and computer-assisted techniques of inductive-deductive and cooperative reasoning. Obstetrics and Reproduction I includes teamwork seminars and practical training with healthy animals and models, including collection, preservation and analysis of biological samples (semen analysis, vaginal cytology, etc.). The subject Radiology and Diagnostic Imaging includes the approach to clinical cases and it also includes teamwork seminars.

During Year 4, Special Pathology is taught through discussion seminars about necropsy cases, together with necropsy and histopathology practical training. General Surgery and Anaesthesia includes applied seminars, and students also practice with cadavers/animal models for learning different surgical techniques, and use a simulator for Anaesthesia. The subject Large Animal Internal Medicine also includes specific seminars and clinical sessions. The subjects Infectious Diseases and Parasitic Diseases include laboratory practicals, clinical case-solving and teamwork seminars oriented to the diagnosis and treatment of these specific diseases. Obstetrics and Reproduction II offer the student laboratory practicals (including in vitro fecundation techniques), virtual-assisted learning for dystocias and visits to centres specialised in reproduction and animal production.



During Year 5, prior to Clinical Rotations, the subject Small Animal Internal Medicine includes seminars for solving clinical cases. Preventive Medicine, Animal Health Policy, Zoonoses and Public Health is taught using computer-assisted learning, and employing preventive and epidemiology programmes commonly used in Animal Health and Public Health. Finally, Special Surgery includes clinical sessions, and practical training on different techniques using animal models/cadavers. It also includes practical training of orchietomy/ovariohysterectomy through a “spaying programme” in collaboration with animal welfare Societies.

3.1.5. Description of the core clinical rotations and emergency services and the direct involvement of undergraduate students in it

Clinical Rotations are scheduled in Semester 10, Year 5 of the Degree, and comprise 12 weeks per student. This Rotation was fully implemented during the academic course 2014/2015. The students are required to have passed 70% of the Degree ECTS. The curriculum assigns 15 ECTS to the Clinical Rotations, with 80% on-site learning.

Students are distributed into 16 groups. The size of the groups is slightly variable depending on the total number of enrolled students. During the course 2014/2015 the number of enrolled students was low, and groups included 3-4 students. During the course 2015/2016 the number of students per group was 5-6. However, in most rotations, groups are subdivided in different specialty clinic rooms or different activities from the same service, so usually the number of students per group and animal is not higher than 4.

The services included in the Clinical Rotations are:

- Small Animal Medicine. It includes Clinics of different specialties (General Medicine, Endocrinology, Gastroenterology, Ophthalmology, Dermatology, Oncology, Cardiology, Neurology, Hepatic diseases and Endoscopy) and the Service of Hospitalisation/Emergencies (ER)/IC.
- Infectious and Parasitic Diseases. It includes rotation through Clinic and through the Diagnosis Laboratory.
- Small Animal Surgery and Reproduction. It includes Clinics of different specialties (General Surgery/First-opinion, Orthopaedics, Dentistry, Neurosurgery, Reproduction, and Rehabilitation-Physiotherapy) and surgery rooms (soft tissue surgery, orthopaedic surgery, dentistry and ophthalmology).
- Small Animal Anaesthesia (for diagnostic procedures and for surgical procedures).
- Diagnostic Imaging. It includes Radiology, Ultrasound, and Computed Tomography and Magnetic Resonance Imaging.
- Pathology: necropsies.
- Large Animal Intra-mural Activities, which include Reproduction of equines and ruminants, Medicine of hospitalised animals (occasionally, ambulatory clinic),

Surgery and anaesthesia of equines and ruminants, and Equine Rehabilitation and Physiotherapy.

- Large Animal Extra-mural Activities, which include Ambulatory clinic of horses, Ambulatory clinic of ruminants, and Ambulatory clinic of reproduction.
- Herd Health Extra-mural Activities, which include Small ruminant farms (specially dairy farms, but also for meat production), Dairy cattle, Beef cattle, Egg Layer Hens, Meat chickens and Porcine production (sow farm and finishing farm).

An example of the distribution of activities for students during rotations is included in Annex 3.1.5.

Most intra-mural activities take place from 9 a.m. to 3 p.m. With regard to extra-mural activities, they include Large Animal Ambulatory Clinics and Herd Health Visits. At the present time there are 9 Associate Teachers in charge of the ambulatory clinic: 4 working in Equines, 4 working in Ruminants and one specialized in Ruminant and Equine Reproduction (mostly focused in Ruminant Reproduction). The number of students per teacher in these practicals is 2-3 at the most. Another Associate Teacher specialised in Equines has been recently hired, increasing the possibility of new practical training. Students are picked-up by the clinician at the FVM or in other meeting points in the rural area that they have to reach by themselves. The vehicles used by the teachers are their own private vehicles; those teachers are prestigious private clinicians that are hired by the University with contracts that allow a balance between teaching and their professional private practice. Each student rotates in equines and in ruminants. Students accompany the teacher attending the scheduled cases and emergencies in equine or ruminant patients, on demand. They actively attend medical, surgical and obstetrics cases and they also make a multidisciplinary approach to herd health.

With regard to the specific visits of Herd Health, each student rotates at least 6 farms (sometimes 7-8) of different species for Preventive Medicine and Herd Medicine training: 1-2 farms of beef cattle or 1-2 feedlots, 1 farm of dairy cows, 1 farm of small ruminants, 1 farm of layer hens, 1-2 farms of poultry and 1 farm of swine, which is visited twice for a complete knowledge of all production stages).

All the information about the Clinical Rotations, including the schedules, ethical and student behaviour standards, biosecurity and welfare rules, and responsibilities, is published and can be downloaded from the Virtual Campus.

Students are directly involved in each activity under the supervision of academic staff. A summary of the hands-on activities, responsibilities, and report writing developed by the students during the Clinical Rotations is included in Chapter 5 (5.1.7 and 5.1.8).



3.1.6. Description of the teaching in slaughterhouses and in premises for the production, processing, distribution/sale or consumption of food of animal origin

The subjects of the curriculum that provide specific training on Food Hygiene/Public Health are: Food Technology (Semesters 5 and 6, Year 3), Food Hygiene, Inspection and Safety (Semesters 7 and 8, Year 4), Sanitary Policy, Preventive Medicine, Zoonoses and Public Health (Semester 9, Year 5), Rotation in Food Hygiene and Technology (Semester 10, Year 5) and Clinical Rotation (Semester 10, Year 5). The content and schedule of these subjects are aimed to fulfil the concept “**From Farm to Fork**”.

The practical training in the subject Food Technology provides the students with the fundamental technological knowledge and skills for their professional activity in food processing plants. Training takes place both in the Food Processing Unit and in the laboratories of the Department of Food Science and Technology. Students become familiar with processing facilities and equipment, and receive training on the manufacture of foods of animal origin, on the use of common techniques for quality analysis and process control in the food industry, as well as on the handling of food ingredients. Practicals include:

- complete manufacture processes of a meat product (bologna) and a dairy product (yogurt) in the FPU.
- calculation of heat treatment parameters for the manufacture of canned foods, through lethality studies.
- methods for validation of heat treatments based on the inactivation of food enzymes (milk pasteurisation).
- instrumental and sensory techniques commonly applied in the food industry: water holding capacity, rheological analysis, sensory analysis.
- study of the functional properties of food ingredients, such as hydrocolloids.

The practical training corresponding to the subject Food Hygiene, Inspection and Safety, includes:

- Laboratory and desk based work, where each student (group size 24, with two teachers) spends 4h in the laboratory to learn rapid methods (PCR and ELISA) in food microbiology and food authenticity. Moreover, each group spends 10h practising hazard analysis and critical control point (HACCP) design, implementation and validation with practical cases. The training in HACCP cases is taught by an Associate Teacher who is the Head of the Madrid Regional Department of Food Safety and Inspection.
- Visitations to slaughterhouses and food premises (3-4h each mandatory visit), where each student, in small groups (size 2-15), visits slaughterhouses (1 mandatory and 1 optional - 8h), fish central market (1 mandatory), meat/fruit central markets (1 optional -5h), industries for the production, processing and distribution of food of animal origin (1 mandatory), reference official

laboratories (1 mandatory), and central kitchens in hospitals or catering companies (1 mandatory). These facilities, with very good premises, and high hygienic and technological standards, are located in Madrid or its surroundings, and the students go by transport vehicles from the FVM, or public or private transport. Each visit is supervised by Official Veterinary Inspectors or technical personnel from the establishments, and also by a member of the teaching staff from the Department of Nutrition, Food Science and Food Technology. The professionals from the establishments are recognised as External Collaborators in Practical Teaching. Moreover, one of the veterinarians at one of the slaughterhouses visited by the students is an Associate Teacher.

The students visit the following establishments:

1. Slaughterhouses

The students know *in situ* the day-to-day working activity in the slaughterhouses and attend sacrifice and inspection procedures, including the reception of animals, ante mortem inspection, stunning, slaughter process, post-mortem inspection, storage and delivery of meat, and also the hygienic control of the personnel, processes, equipment and facilities. Moreover, the students receive information on traceability, sanitary marking, specified risk materials (SRM), hygienic and sanitary control of installations, staff and activities (HACCP), ISO, IFS, BRC Standards, and veterinary activities (paperwork, product confiscation, and laboratory tests).

The slaughterhouses that the students visit are the following:

- 1.1. Matadero Madrid Norte S.A. Group size: 6. Duration: 4h. Frequency of visits: 1. Supervisors: 2.
 - 1.2. Matadero Cárnicas de Tabladillo S.A. Group size: 6. Duration: 4h. Frequency of visits: 1. Supervisors: 2.
- All the students visit one slaughterhouse. Moreover, 60 students have the possibility (optional) to stay in the slaughterhouse cited below together with an Associate Teacher who is the veterinarian of the establishment:
- 1.3. Matadero Carnes Sierra de Madrid S.A. Group size: 3. Duration: 4 h. Frequency of visits: 2. Supervisors: 3.

2. Fish, meat, and fruits central markets

The students know *in situ* the day-to-day working activity in these central markets. Specifically, they receive information from Official Veterinary Inspectors about fish species identification and differentiation, fish/meat/fruit freshness, control of minimal fish sizes, labelling, analytical determination of additives, microbiological control, etc. Moreover, the students receive training about hygienic and sanitary control (plant, fish/meat/fruit, staff, refrigeration, chilling, freezing, etc.) and on other professional activities (paperwork, product confiscation, and laboratory tests).



2.1. Mercamadrid S.A. Group size: 20. Duration: 4 h. Frequency of visits: 1 (fish market). Supervisors: 4. Moreover, 60 students have the possibility (optional) to stay in this establishment for 5 additional hours to visit the meat and fruit markets together with the Official Veterinary Inspectors.

3. Industries for the production, processing and distribution of food of animal origin

The students know *in situ* the day-to-day working activity in meat/fish industries that elaborate different products (cured, smoked, cooked meat products, smoked fish, frozen fish, etc.). Specifically, they can see and check the whole processes: the meat reception area, the refrigeration areas for raw material and meat products, deboning, cutting and mixing, cooking, packaging, and storage. Moreover, the students receive training about hygienic and sanitary control (plant, meat, staff, refrigeration, chilling, freezing, etc.), HACCP, ISO, IFS, BRC Standards, etc.

The students visit the following plants:

- 3.1. Campofrío S.A. Meat transformation industry. Group size: 20. Duration: 4h. Frequency of visits: 1. Supervisors: 3.
- 3.2. MRM2, S.A. Meat transformation industry. Group size: 20. Duration: 4h. Frequency of visits: 1. Supervisors: 3.

All the students visit one of these establishments.

- 3.3. Confremar, S.A. Fish processing industry. Group size: 20. Duration: 4h. Frequency of visits: 1. Supervisors: 3.
- 3.4. La Astorgana, S.A. Fish processing industry. Group size: 15. Duration: 4h. Frequency of visits: 1. Supervisors: 3.

All the students visit one of these establishments.

4. Reference official laboratories

The students also receive practical training through visits to reference laboratories of the Spanish Ministry of Health, where microbiological, physical-chemical, genetic and immunological techniques are applied in official inspection programmes to evaluate the quality and safety of different products.

- 4.1. Centro de Investigación y Control de la Calidad (CICC). Group size: 50 (divided in 5 groups). Duration: 4h. Frequency of visits: 1. Supervisors: 7.
- 4.2. Centro Nacional de Alimentación (CNA). Group size: 10. Duration: 4h. Frequency of visits: 1. Supervisors: 4.
- 4.3. Laboratorio Arbitral Agroalimentario (LAA). Group size: 10. Duration: 4h. Frequency of visits: 1. Supervisors: 4.

- 4.4. Laboratorio Municipal de Salud Pública. Group size: 10. Duration: 4h. Frequency of visits: 1. Supervisors: 4.

5. Catering and hospital central kitchens

The objective of these visits is that the students know *in situ* the day-to-day working activities in catering facilities and hospital central kitchens, and receive training about the hygiene and quality control of the whole process. They are trained on the manipulation of food and raw material, dish preparation, maintenance and serving. Besides, they receive information about hygiene and sanitary control of installations, staff and activities, HACCP, ISO, IFS, BRC Standards, etc.

All the students visit one of the following establishments:

- 5.1. Hospital Central de la Defensa. Hospital central kitchen. Group size: 24. Duration: 4 h. Frequency of visits: 1. Supervisors: 3.
- 5.2. Scolarest S.A. Multinational catering company. Group size: 20. Duration: 4 h. Frequency of visits: 1. Supervisors: 3.
- 5.3. Catergest S.A. Catering company. Group size: 20. Duration: 4 h. Frequency of visits: 1. Supervisors: 3.
- 5.4. Bedmar S.A. Catering company. Group size: 20. Duration: 4 h. Frequency of visits: 1. Supervisors: 3.

The practical training in the subject **Rotation in Food Hygiene and Technology** takes place in the FPU and in the adjacent laboratories. During this training, students develop the specific skills acquired in previous years in the field of Food Hygiene, Safety and Technology. During 2 weeks, each student reproduces, at pilot scale, the production and preservation processes of different foods of animal origin, simulating the activities occurring in the food industries. The objective is to take a step further, beyond a student perspective and into a professional approach to the main hygienic and technological aspects involved in the food manufacturing processes, and also to apply different analytical techniques used by food business operators and official laboratories to control food safety and quality. During this Rotation, students also visit food industries and food quality control centres, and attend seminars/lectures taught by industry professionals. Special importance is given to the oral and written integrative discussion of all the results obtained by the students in each activity.

The subject Sanitary Policy, Preventive Medicine, Zoonoses and Public Health includes practical training in the computer room, intended to provide students with knowledge about the main National and International Organisations with competence in Public Health and Zoonoses, and how to look for information related to Public Health in their respective websites. The students are also trained in current Health Programs and their evaluation, current systems for Veterinary Public Health surveillance, monitoring of zoonoses in the European Union, and outbreak investigation. Training also includes



programmed invited conferences/lectures given by personnel of National Agencies with competences in Public Health.

Finally, and although this is not the main purpose of the subject Clinical Rotation, practical training in food producing animal farms organised by the Animal Health Department include specific references to the control of conditions considered zoonotic, the application of current Official Sanitary Programmes and the evaluation of sanitary parameters related to the quality of food obtained from animals. Examples of Official Sanitary Programmes relevant for Public Health which are reviewed include the control programmes for tuberculosis in ruminants, brucellosis in small ruminants and *Salmonella* in laying hens and broilers. Besides, and whenever possible based on the sampling routine in the farms, the students collect samples for those programmes. An example of sanitary parameters relevant for food quality is the verification of somatic cell count in cow and sheep/goat milk, and the review of milking routine due to their importance for the prevention and control of mastitis and their effects in milk quality.

3.1.7. Description of the selection procedures of the Electives by the students and the degree of freedom in their choice

The number of credits included as Electives in the Curriculum is low (only 6 ECTS). The regulation for obtaining elective credits in the UCM includes the possibility of tutored training activities such as collaboration with Departments, active participation in scientific congresses, sport and cultural activities, cooperation, and representation tasks. Many students obtain these credits through collaboration with the Departments and the VTH as “collaborator students”, or by participating in the annual *National Congress on Undergraduate Research in Health Sciences*, where the presence of our students is always prominent.

Besides, the curriculum includes six Elective subjects (3 ECTS each), with a sufficient maximum number of students (50 per subject). This can be the reason why, to date, all students have followed the Elective of their interest. If an Elective subject is full, the selection criterion is the average grade of the student academic record.

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

EPT is an obligatory Core Subject of 3 ECTS in Semester 10, Year 5. To follow the EPT, it is mandatory to have successfully completed 70% ECTS of the curriculum. The students must complete a minimum of 60 h of practicals in external entities (e.g., veterinary clinics, veterinary hospitals, companies, academic institutions, scientific centres, administration institutes, etc.) in any of the areas linked to Veterinary Science. The EPT is regulated by the Specific Rules approved by the Faculty Council (<https://veterinaria.ucm.es/data/cont/docs/30-2014-10-14->

[2.1%20Reglamento%20de%20Pr%C3%A1cticas%20Externas%202014%202015.pdf](#)).

The organisation of EPT depends on the Committee of External Practical Training, composed of the Dean, the Vice-Dean responsible for the EPT, a representative of each Department, a representative of the Committee for Assessment and Improvement of the Curriculum, and a student representative. The Professional Orientation Office attended by COLVEMA in coordination with the FVM, also collaborates with the EPT Committee, especially in managing agreements with entities represented by members of COLVEMA.

The functions of this Committee are:

- To plan the student needs, offering a wide possibility of collaborating entities.
- To authorise the EPT of each student.
- To take part on the evaluation process of the EPT of each student.
- To mediate and to solve possible conflicts related to the EPT.
- To confirm that the external entities have sufficient quality to guarantee a correct learning process.

The Committee publishes on the website and the Virtual Campus a list of external entities with an active agreement that are available to receive students from our Faculty. To date, the FVM has promoted a wide number of agreements with many national and international entities, including veterinary hospitals, zoological parks, wildlife rehabilitation centres, research centres, food industries, livestock farming and industries, animal food producers, etc. (see a list in Annex 3.1.8.). Approximately one year ago, the UCM Rectorate made the management of agreements easier, by enabling that all Faculties could use previous agreements initially proposed by any Faculty.

Each year, students can apply for an entity until January. They can also propose new entities that are not included in the list, if interested; in this case, the Committee evaluates the proposal and, if appropriate, facilitates the approval of an agreement for the EPT. The Committee evaluates the applications of all the students, once all of them have been received. In most cases, the process is not competitive, and most students can carry out the EPT at the entity of their choice. However, in the case of some specific entities, the demand is higher than the available positions. In this case, selection is performed by the Committee together with the external entity, and it is based on the curriculum, especially on the average grade of the student.

Each student has an internal tutor (who is always a teacher from the FVM) and an external tutor at the entity.

Finally, if interested, the students may also carry out voluntary extracurricular practical training during the Degree. The management of this training also depends on the same Committee. These EPT is subjected to the subsequent mention in the European Supplement to the Degree.



3.1.9. Description of the procedures used to ascertain the achievement of each core practical/clinical activity by each student

The evaluation procedures depend on the subject. With regard to practical/clinical activities, and in order to check that the skills to be acquired following our Curriculum were fully consistent with the newer approach of the Day-One competences, the subject coordinators were requested to define the specific Day-One competences acquired after passing each compulsory subject. This information was the starting point for a document of compliance of the curriculum with the **Day-One competences approach** (See Appendix 2.b).

Besides, the FVM has recently designed a **personal Logbook** for the students (see Annex 3.1.9). Teachers are requested to certify in this document that the students have acquired specific skills during the Rotations.

In a similar way, in the case of Clinical Rotations, the students receive a schedule with the activity to be carried out every day, which must be signed by the teacher. In addition, the teacher must complete a daily questionnaire evaluating the knowledge and technical skills acquired by the student, including attitude and behaviour. A high percentage of the grading (around 65% in most activities) comes from the results of those questionnaires. At the end of each rotation, the students must also present a clinical report about a patient/group of patients directly attended by them, with details about the clinical activities developed by the student, and discussion based on the literature. In the case of Herd Health, every student should present four written reports, proposed by the teacher, regarding biosecurity procedures of a specific farm or production unit, the design of a Health Herd programme or a business data analysis. In summary, at the end of the Clinical Rotation, each student must present 12 written reports, which will be evaluated by the clinician responsible for the case/visit. Evaluation of the written reports will

represent 35% of the grading in most cases, reaching 80% in reports relative to Herd Health.

With regard to EPT, evaluation depends on the specific Committee, and it is based on the internal and external tutor reports, and any other relevant information about the placement. At the end of the process, the Committee also requests QA satisfaction surveys to students, external entities and internal tutors.

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

As indicated in previous sections (3.1.2), the UCM Veterinary curriculum complies with the European Directive 2005/36, with the National regulations that establish the curriculum conditions leading to qualification for the exercise of the regulated profession, and with the requirements for the verification of official university qualifications for the exercise of the profession of Veterinarian. All the Veterinary Establishments in Spain are governed by the same regulations that have been agreed by the Spanish Conference of Veterinary Faculties (<http://conferencia-decanos-veterinaria.es/>), to provide homogeneity and coherence to Veterinary education and to favour exchange and mobility of students. As it is mandatory, the curriculum was verified by ANECA (June 30, 2010). The programme was implemented in the academic year 2010/2011.

The procedures for the QA of the Degree are fully described in Chapter 11. Since the approval of the Degree, no major changes have been introduced in the annual planning. The minor modifications and improvements are communicated to all parties through meetings and publication on the website, Virtual Campus, informative displays and social networks. In the academic year 2017/2018, once the programme has been accredited (and including, where appropriate, the improvements proposed by the evaluation agencies), a plan for the review of the syllabus will be proposed.

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

Academic year	A	B	C	D	E	F	G	H
Year 1	411	77	751	184	4	0	71	1,498
Year 2	414	72	726	126	0	88	74	1,500
Year 3	425	75	811	80	10	37	62	1,500
Year 4	490	84	670	4	4	184	66	1,502
Year 5	231	23	521	85	40	434	41	1,375

A: lectures; B: seminars; C: supervised self-learning; D: laboratory and desk based work, E: non-clinical animal work; F: clinical animal work; G: Tutorials and evaluation; H: 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	73	25	156	40	0	0	20	315
Medical Physics	16	3	38	14	0	0	5	75
Chemistry (inorganic and organic sections)	19	6	35	10	0	0	5	75
Animal biology, zoology and cell biology	17	0	38	11	0	0	4	70
Feed plant biology and toxic plants	6	4	8	0	0	0	2	20
Biomedical statistics	16	12	38	5	0	0	5	75
Basic Sciences	672	130	1,252	287	10	32	121	2,503
Anatomy, histology and embryology	146	13	300	106	0	0	35	600
Physiology	94	23	150	26	0	0	7	300
Biochemistry	63	13	100	18	0	0	8	200
General and molecular genetics	43	13	75	13	0	0	8	150
Pharmacology, pharmacy and pharmacotherapy	38	5	86	13	0	0	9	150
Pathology	38	11	60	0	0	32	10	150
Toxicology	34	9	67	13	0	0	11	134
Parasitology	33	9	53	24	0	0	6	125
Microbiology	57	8	97	22	0	0	4	188
Immunology	30	4	41	12	0	0	2	88
Epidemiology	23	2	43	5	0	0	4	75
Professional communication	0	2	0	0	0	0	0	2
Professional ethics	4	1	3	2	2	0	4	16
Animal ethology	13	2	27	0	5	0	1	48
Animal welfare	12	2	14	4	3	0	5	39
Animal nutrition	47	15	137	31	0	0	11	241
Clinical Sciences	879	145	1,091	2	0	666	108	2,890
Obstetrics, reproduction and reproductive disorders	120	27	120	0	0	23	11	300
Diagnostic pathology	55	12	80	0	0	47	6	200
Medicine and surgery, including anaesthesiology	498	80	560	0	0	205	57	1,400
Clinical practical training in all common domestic animals	0	0	75	0	0	290	10	375
Preventive medicine	53	0	49	0	0	26	6	133
Diagnostic imaging	68	0	60	0	0	15	8	150
State veterinary services and public health	28	6	31	0	0	0	2	67
Veterinary legislation, forensic medicine and certification	7	2	5	2	0	0	0	16
Therapy in all common domestic animal species	20	14	51	0	0	14	3	100
Propaedeutics of all common domestic animal species	32	5	60	0	0	47	7	150
Animal Production	175	9	395	56	25	0	24	683
Animal Production and breeding	57	4	128	11	0	0	17	216
Economics	28	0	49	0	0	0	5	81
Animal Husbandry	43	1	87	12	2	0	1	145
Herd health management	47	4	131	34	23	0	2	240
Food Safety and Quality	148	0	331	69	8	0	20	576
Inspection and control of food and feed	50	0	78	12	0	0	0	140
Food hygiene and food microbiology	38	0	60	13	0	0	0	111
Practical work in places for slaughtering and food processing plants	0	0	56	26	8	0	15	105
Food technology including analytical chemistry	60	0	137	18	0	0	5	220
Professional knowledge	24	23	255	27	17	45	19	409
Professional ethics and behaviour	3	0	9	2	3	9	0	25
Veterinary legislation	19	8	36	7	0	0	0	70
Veterinary certification and report writing	2	1	109	2	3	9	14	140
Communication skills	0	7	43	0	3	9	0	62
Practice management and business	0	7	14	0	3	9	0	33
Information literacy and data management	0	0	45	16	5	9	5	80

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

*Numbers are rounded to no decimals, therefore totals may not equal the sum of the hours corresponding to each subject or teaching procedure



Table 3.1.3. Curriculum hours taken as electives for each student*

Electives	A	B	C	D	E	F	G	H
Basic Sciences	30	8	65	10	0	0	4	117
Aquaculture and Fish Diseases	14	2	14	4	0	0	1.5	35.5
Laboratory Animals	8	2	20	0	0	0	0.5	30.5
Veterinary Sciences and the Environment	8	4	30	6	0	0	2	50
Clinical Sciences	44	23	81	9	3	17	11.5	189
Aquaculture and Fish Diseases	3	0	4	0	0	2	1	10
Clinical Diagnosis by Laboratory	17	16	30	6	0	0	6	75
Clinical Medicine of Exotic Pets	18	5	30	0	3	15	4	75
Laboratory Animals	6	2	17	3	0	0	0.5	29
Animal Production	15	1	23	2	0	0	4	45
Aquaculture and Fish Diseases	11	0	8	0	0	0	1.5	21
Laboratory Animals	2	0	4	0	0	0	0.5	6
Veterinary Sciences and the Environment	2	1	11	2	0	0	2	18
Food Safety and Quality	2	1	5	0	0	0	0	8
Veterinary Sciences and the Environment	2	1	5	0	0	0	0	8
Professional knowledge	15	8	52	10	0	2	2.5	90
Aquaculture and Fish Diseases	2	0	3	0	0	2	1	8
History, Documentation and Theory of Veterinary Medicine	11	8	45	10	0	0	1	75
Laboratory Animals	2	0	4	0	0	0	0.5	6

*Numbers are rounded to no decimals, therefore totals may not equal the sum of the hours corresponding to each subject or teaching procedure

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

Subjects	Minimum duration (weeks)	Year of programme
Production animals (pre-clinical)*	60 hours**	5
Companion animals (pre-clinical)*		
Production animals (clinical)*		
Companion animals (clinical)*		
FSQ & VPH*		
Others*		

*The student can select the subject of External Practical Training among all the possible subjects related to the studies. The proposal is approved by a Committee of External Practical Training (see Chapter 3, 3.1.8)

**The total duration of the EPT is a minimum of 60 hours, distributed as agreed by the student and the external entity





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

Types	List of clinical rotations (Disciplines/Species)	Duration (days)	Year of programme
Intra-mural (VTH)			
Small Animal Medicine	Clinics of: <ul style="list-style-type: none"> ▪ General Medicine ▪ Endocrinology ▪ Gastroenterology ▪ Ophthalmology ▪ Dermatology ▪ Oncology ▪ Cardiology ▪ Neurology ▪ Hepatic diseases ▪ Endoscopy Hospitalisation/ER/IC	10	5
Infectious and Parasitic Diseases	Clinic (4 days) Diagnosis Laboratory (1 day)	5	5
Small Animal Surgery and Reproduction	Clinics: <ul style="list-style-type: none"> ▪ General surgery/First-opinion ▪ Orthopaedics ▪ Dentistry ▪ Neurosurgery ▪ Reproduction ▪ Rehabilitation-Physiotherapy Surgery rooms (soft tissue surgery, orthopaedic surgery, dentistry, ophthalmology)	10	5
Small Animal Anaesthesia	Anaesthesia for: <ul style="list-style-type: none"> ▪ Diagnostic procedures ▪ Surgical procedures 	4	5
Diagnostic Imaging	<ul style="list-style-type: none"> ▪ Radiology ▪ Ultrasound ▪ Computed Tomography and Magnetic Resonance Imaging 	5	5
Necropsies	Necropsies	4	5
Large Animal Area (intra-mural activities)	<ul style="list-style-type: none"> ▪ Reproduction of equines and ruminants ▪ Medicine of hospitalised animals (occasionally, ambulatory clinic) ▪ Surgery and anaesthesia of equines and ruminants ▪ Equine Rehabilitation and physiotherapy 	10	5
Ambulatory clinics			
Large Animal Ambulatory Clinics	<ul style="list-style-type: none"> ▪ Ambulatory clinic of horses (2 days) ▪ Ambulatory clinic of ruminants (2 or 3 days) ▪ Ambulatory clinic of reproduction 	5	5
Herd health (extra-mural activities)	<ul style="list-style-type: none"> ▪ Small ruminants farm (specially, for milk production, but also for meat production) ▪ Dairy cattle farm ▪ Beef cattle farm ▪ Egg Layer farm ▪ Meat chicken farm ▪ Porcine production farm (sow farm and finishing farm) 	7	5
FSQ & VPH			
Visits to slaughterhouses and food industries	<ul style="list-style-type: none"> ▪ Slaughterhouses ▪ Fish/meat/fruit/central markets ▪ Reference official laboratories ▪ Food industries/central kitchens (in hospitals or catering companies) 	5 (+2 electives)	4
HACPP	▪ HACPP design, implementation and validation	3	4
Rotation in Food Hygiene and Technology	▪ Work in the FPU	10	5
Electives			
Aquaculture and Fish Diseases	▪ Visit to external facilities: fish farm and Zoo-Aquarium	2	5
Clinical Diagnosis by Laboratory	▪ Work in clinical pathology cases	11	5
Clinical Medicine of Exotic Pets	▪ Clinical rotation in exotic pets	5	5
History, Documentation and Theory of Veterinary Medicine	▪ Visit to the Veterinary Museum and Historical Museum	2	5
Veterinary Sciences and the Environment	▪ Visit to external facilities (pig farms and hunting ground)	2	5
Others			
Rotation in Animal Production	<ul style="list-style-type: none"> ▪ Planning of farming activities, using animal management techniques, animal hygiene, animal feeding, animal welfare and animal husbandry ▪ Technological processes, reproductive procedures and replacement planning based on production goals ▪ Identification of animal feed raw materials ▪ Quantitative and molecular genetics in breeding and conservation programmes 	10	5
Rotation as Collaborator Student (Elective credits)	▪ Collaborator student in different Clinical Services of the VTH	40	3-4-5



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

The current configuration of the curriculum only includes 6 ECTS of Elective subjects, but no pre-designed optional courses. As explained previously in Chapter 3 (3.1.7), the student can choose among Elective subjects and a great variety of elective activities freely offered by the University and the FVM, to obtain those 6 ECTS.

3.2. Comments

The new syllabus implemented in 2010/2011 includes a distribution of contents suitable for the acquisition of all the competences of the veterinary profession. Advantages of this new syllabus include self-directed learning since Year 1 (as suggested in the last EAEVE report), and a significant increase in training on clinical sciences. Based on the comments included in the EAEVE report, multidisciplinary learning and proactive approach to Herd Health and Population Medicine have also been strengthened through a prominent increase in the number of farms/external premises where our students can develop extra-mural practical training.

Other significant improvement is the establishment of rotation periods in which the students complete hands-on practicals during time periods without theoretical teaching.

On the other hand, the inclusion of a **Graduation Thesis** in the current syllabus, following the recommendation of the last EAEVE report, has also improved the acquisition of different specific professional skills by the students.

The system for the follow-up of the syllabus is primarily based on a systematic work by the Committee for Assessment and Improvement of the Curriculum, which counts with the participation of University and external stakeholders. In this five-year period of development of the new syllabus (2010-2016) the objective of the FVM has been to identify issues to be addressed in order to initiate a global action that regards the improvement of the Degree in an integrated way, with an in-depth analysis of the change proposals and their consequences. To date, and using this information, specific problems and minor changes have been addressed. Information is

being collected in order to address a future review of the syllabus, which will not be feasible until the next accreditation of the Degree, in 2017. Among the issues that the QA System of the FVM considers that should be addressed in a future revision of the syllabus, special mention should be made to:

- Revision of the placement of some subjects in the Degree, such as General Pathology, Nosology and Physiopathology, Clinical Propaedeutics, and Radiology and Diagnostic Imaging, that currently require a great effort on the part of teachers and students to acquire the competences. The placement of Deontology, Legal Medicine and Legislation in Year 1 also needs to be revised.
- Planning of the subjects related to Structure and Function. From the first year of implementation of the Degree, the time planning of some subjects such as Anatomy, Physiology and Histology was challenged both by the teachers in the coordination meetings, and by the students in the teaching monitoring meetings. In order to achieve a coordinated teaching until the syllabus can be modified, the subjects Anatomy I and II, Histology, and Physiology I and II, have provisionally adapted their schedules and programmes in a consistent way.

3.3. Suggestions of improvement

Once additional issues related to the current syllabus have been identified, the proposals for improvement will be discussed for approval by the Faculty Council. They will also be included in the future review of the Degree.

The Spanish Conference of Veterinary Faculties has carried out an in-depth analysis of the Veterinary education programmes in Spain. Considering the positive experience related to the implementation of practical rotational periods, a proposal has been made to government decision-makers in the field of education (Ministry of Education, Culture and Sport) in order to extend to one additional semester the duration of the Veterinary Degree in our county, which would allow teaching by a track system as well as a better redistribution of the overall on-site teaching.

4.

Facilities and equipment



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4. FACILITIES AND EQUIPMENT

4.1. Factual information

4.1.1. Description of the location and organisation of the facilities used for the veterinary curriculum

The FVM is located in the Moncloa Campus of the UCM, in the Northwest area of Madrid, very close to the city centre (Moncloa-Aravaca district) and to the main ring

highway M-30 and the A-6 highway. Vehicular access is very easy, either from outside the city or the city centre. The area is well served by public transportation (more than 20 bus lines), and also near the metro stations “*Ciudad Universitaria*” (Line 6) and “*Moncloa*” (Lines 3 and 6). The FVM occupies a total area of 90,528 m² and includes twelve different buildings and three fenced areas for cattle and horses.

Table 4.1.1. Description of the FVM buildings and facilities

Building	Surface/Floors	Facilities
MAIN BUILDING	15,908 m ² /6	Government Bodies and Central Administrative Services, Erasmus Office, Student Orientation Office, Professional Orientation Office, Library, 3 Computer rooms, Departments of Biochemistry and Molecular Biology IV, Pharmacology and Toxicology, Applied Physics, Animal Physiology and Animal Health, including animal facilities and Teaching laboratories. Also houses the Auditorium (272 people), Graduates Lecture Room (74 people), Meeting Room (85 people [45+40]), Teachers Room (20 sitting places), Seminar Room (25-30 sitting places), Reprography Service, personnel locker rooms, and the Food Processing Unit (FPU)
FPU	360 m ² /1	It includes a clear area of around 210 m ² and 3 auxiliary laboratories (60 m ² , 48 m ² , and 42 m ²). It contains complete lines for cheese and sausage production, as well as general equipment for food processing and analysis.
ANATOMY BUILDING	1,453 m ² /3	Teaching and research laboratories and facilities, and 2 Dissection Rooms
ANIMAL HEALTH BUILDING	2,544 m ² /2	Teaching and research laboratories and facilities, including a rest zone and parking of around 750 m ²
FOOD SCIENCE AND TECHNOLOGY BUILDING	1,091 m ² /3	Department of Food Science and Technology, with its teaching and research laboratories and facilities, 1 lecture room (62 places)
ANIMAL PRODUCTION BUILDING	2,405 m ² /4	Department of Animal Production, with its teaching and research laboratories, 1 lecture room (71 places). Animal Resource Centre
BUILDING-A	807 m ² /2	6 movable partitioned lecture rooms (25 to 75 places), 2 lecture rooms (100 places) and Student Association Office
BUILDING-B	2,914 m ² /2	4 large lecture-rooms (256, 208, 208 and 216 places), cafeteria and self-service restaurant (200 places), Faculty Staff cafeteria, with 60 seats and Student Association Offices
ANIMAL PHYSIOLOGY BUILDING	782 m ² /1	Department of Animal Physiology with its teaching and research labs
ANIMAL RESOURCE CENTRE (ANIMAL PHYSIOLOGY)	227 m ² /1	Animal Resource Centre
TEACHING FARM	18,000 m ² /1	Main building (including teaching laboratory and lecture room for 70 students) and fenced areas for horses (500 m ²), cattle (2,100 m ²), small ruminants (930 m ²), poultry (252 m ²), rabbits (171 m ²) and a dog training area (395 m ²)
VTH BUILDING	18,648 m ² /3+2	Clinical and Support Services, and many laboratories, Department of Animal Medicine and Surgery, related teaching and research labs, Administrative and Economic Services of the VTH, 3 large lecture rooms (120, 120 and 111 places), and the facilities of VISAVET
VISAVET	2,000 m ² /1	Health Surveillance Centre with Biosafety level 2 Area (with BSL-2 laboratories and necropsy room), BSL level 3 Area (with BSL-3 laboratories and BSL-3 necropsy room) and cleanroom Class-A Area



4.1.2. Description of the premises for:

-) lecturing

Table 4.1.2.1. Premises for lecturing

Halls	1	2	3	4	5	6	7	8	9	10	11	12
Places	100	100	256	228	208	208	112	117	101	27	20	24
Name*	A4	A8	B1	B2	B3	B4	H1	H2	H3	AI1	AI2	AI3
Surface (m ²)	100	101	259	255	226	228	135	136	131	113	62	56
Equipment**	AC/WA/M/W	AC/M/W	AC/WA/M/W									

*Name at the FVM Facilities. AI=Computer classroom; **AC: Air conditioning, WA: Wheelchair accessible, M: Media, W: Wi-Fi coverage

Total number of places in the lecture hall: 1,501

-) group work

Table 4.1.2.2. Premises for group work

Halls	1	2	3	4	5	6	7	8	9
Places*	25-50-75	25-50-75	25-50-75	25-50-75	25-50-75	25-50-75	62	50	26
Name**	A1	A2	A3	A5	A6	A7	A9	A10	Seminar-1
Surface (m ²)	35	34	35	38	39	39	81.94	67	56
Equipment***	AC/WA/M/W	AC/WA/M/W	AC/WA/M/W	AC/M/W	AC/M/W	AC/M/W	AC/WA/M/W	AC/WA/M/W	AC/M/W

*Movable partitioned lecture rooms (25-75 places); **Name displayed at the FVM Facilities; ***Equipment: AC: Air conditioning/ WA: Wheelchair accessible/ M: Media/ W: Wi-Fi coverage

Total number of places in rooms for group work: 491

-) practical work

The FVM counts with more than forty facilities for practical training. Detailed information is provided in Annex 4.1.2 and in Appendix 3 (maps). The total number of places in rooms for practical work is 806. There are several certified laboratories according to ISO standards, one EU Reference Laboratory (for Bovine Tuberculosis), and two OIE Reference Laboratories (for African Horse Sickness and African Swine Fever).

4.1.3. Description of the premises for housing:

-) healthy animals

Table 4.1.3.1. Premises for animal housing (in compliance with Law 53/2014, animals used in teaching are intended for scientific use)

	Animal Physiology	Animal Production	Animal Health	VTH	Teaching Farm	VISAVET	Total
Authorized Species							
Rodents	X	X	X			X	4
Rabbits	X		X		X		3
Dogs	X		X	X		X	4
Cats			X	X			2
Small Ruminants			X	X	X	X	4
Cattle			X	X	X	X	4
Equines				X	X		2
Swine			X			X	2
Exotic pets and wildlife				X			1
Poultry					X	X	2
Apes						X	1
Control Systems							
Temperature	X	X	X	X	X	X	6
Humidity	X	X	X	X	X	X	6
Light-dark cycles		X					1
Fire	X			X			1
Facilities							
Quarantine		X		X		X	3
Laboratory	X				X	X	3
Surgery Room	X					X	2
Necropsy Room	X		X			X	3
Store Room	X	X	X		X	X	5
Cleaning Room	X	X	X			X	4
Locker Room	X		X		X	X	4
Level 3						X	1



Table 4.1.3.2. Potential use of the three main premises: maximum capacity, number of allocated animals used for teaching, and subjects taught in the premises

Maximum capacity / No. Animals for teaching. Subjects taught using the facility			
Species	Physiology Premises	VTH Premises	Teaching Farm
Horses	-	10/5-10	48/3-10
		Reproduction and Obstetrics, Propaedeutics, Diagnostic Imaging, Clinical Rotation, Basis of Animal Production I, Postgraduate courses	
Cattle	-	10/0-3	45/0-30
		Reproduction and Obstetrics, Propaedeutics, Diagnostic Imaging, Clinical Rotation, Postgraduate courses	
Small ruminants	-	30-40/0	100-150 permanent + 80-210 temporary/45-60
		Basis of Animal Production I, Rotation in Animal Production	
Dogs	30/10 Physiology, Laboratory Animals and Postgraduate courses	40/22 Propaedeutics, Reproduction and Obstetrics, Animal Medicine and Surgery	30-40/0 Breeding and Animal Science I, Postgraduate courses
Poultry	-	-	90 laying hens + 480 broilers/50 laying hens + 300 broilers Rotation in Animal Production
Rabbits	50/20 Physiology, Laboratory Animals, Postgraduate courses	-	56 does + 84-168 young rabbits/40 does + 8 adult males + 100 young rabbits Animal Nutrition, Rotation in Animal Production
Rodents	1,000 rats (or mice) + 40 hamsters (or guinea-pigs) / 50+10=60 Physiology, Laboratory Animals, Postgraduate courses	-	-
Exotic animals	-	Variable, adapted to animal requirements (small mammals, reptiles, birds) Propaedeutics, Medicine of Exotic Animals	-

-) hospitalised animals

Table 4.1.3.3. Facilities for hospitalised animals

	Species	Number of places
	Regular hospitalisation	Cattle
Equine		30 distributed as follows: 10 in VTH-Room no. 1 (Medicine), 10 in VTH-Room no. 2 (Surgery), 8 in VTH-Room no. 3 (Reproduction) and 2 places in IC
Small ruminants		10 in 2 fenced areas in the ruminant room in the VTH
Pigs		6 pig cages
Dogs		20 in cages, 4 in large dog boxes, 1 in VTH Hospitalisation (large dog fenced area)
Cats		11
Other: Exotic animals		8 terrariums + 5 aquariums for reptiles, 16 bird cages, 18 cages for rabbits, guinea-pigs, ferrets, and hamsters (most of them can be divided to house several very small individuals)



-) isolated animals

Table 4.1.3.4. Facilities for isolation

Isolation facilities	Species	No. places
	Horses and farm animals	2
	Small animals	10

4.1.4. Description of the premises for:

-) clinical activities

These activities are developed in the VTH.

1. **Small Animal Area** (lobby, large waiting rooms for dogs and cats, 14-22 consulting rooms: one room for special procedures and another for exotic animals, 5 surgery rooms and area for regular hospitalization, IC and ER). Other rooms for specific procedures are retinography and electromyography (1), oncology (2), and isolation area for small animals (1).

The **Small Animal Internal Medicine Service** includes first-opinion consultations (2 rooms) and specialty consultations: ophthalmology, dermatology, neurology, oncology, hepatic diseases, nephrology and urology, cardiology, gastrointestinal diseases, infectious diseases, haematology, endocrinology and nutrition.

The **Small Animal Surgery Service** includes consultations and surgery procedures of soft tissue surgery, orthopaedics, neurosurgery, dentistry, stem cells unit and physiotherapy and rehabilitation.

1.1. **Exotic Animals Service.** It includes consultation.

1.2. **Small Animal Hospitalisation, IC and ER Service.**

2. **The Large Animal Area** comprises 4 box rooms, 1 radiology room, 2 surgery rooms, 3 rooms for examination and specific clinical procedures, and area for IC.

3. The **Central Services Area** of the VTH comprises different services which are common to the small and large animal areas.

3.1. The **Anaesthesiology Service** performs sedations and anaesthetic procedures required by the patients (exotic, small and large animals). It is equipped with 4 Anaesthesia Units in the Small Animal Operating Rooms, 2 in the Large Animal Operating Room, 1 in the Magnetic Resonance Facility, and 4 Mobile Anaesthesia Units.

3.2. The **Diagnostic Imaging Service** performs radiographic, ultrasound and MRI diagnosis for the VTH patients and also receives referrals from private practices. This service facilities includes 2 X-ray rooms for small animals and exotic pets, 1 X-ray room for large animals, 1 ultrasound room for small animals and 1 MRI unit for small and large animals.

3.3. The **Pharmacy Service/Store** serves as the control of all medicines and drugs, fungible material, instruments, laboratory equipment, sutures and other orders requested by the different services of the VTH.

4. **Management.** Government and administration corresponds to the VTH Board and to the VTH Director, VTH Manager, Heads of Hospital Areas and the VTH Secretary. The VTH Management area is divided into four sections: Management, Personnel, Economic Affairs and Patient Administration (appointments/admission/payment).

A detailed description of the staff involved in clinical activities is given in Annex 4.1.4.

-) diagnostic services including necropsy

VTH

1. The **Pathology Service** carries out pathological diagnostics of necropsies and biopsies. This service is equipped with two large Necropsy rooms, a Histopathology Laboratory and one Pathology Diagnostic Room. Currently, up to 3,000 biopsy samples, and at least 500 necropsies are processed or performed per year.

2. The **Clinical Pathology Service** carries out haematological, biochemical analysis and cytological studies, and coordinates the activity of the VTH emergency laboratory. It has 3 different laboratories: one for routine tests, another one for more complex techniques, and the emergency laboratory. It performs around 20,000-30,000 tests per year.

3. The **Laboratory of Microbiology and Parasitology** is intended for the diagnosis of infectious and parasitic diseases (bacteriology, mycology, virology, parasitology and immunology). In the last five years, 7,297 analyses have been performed (1,258 analyses in 2015).

Table 4.1.4. Diagnostic service equipment

Service	Equipment
Pathology Service	Microscopes, including multi-head microscope with digital photography system, paraffin embedding vacuum system, tissue processing system, paraffin block preparation system, microtome, autostainer, cryostat, immunostainer, storage system for paraffin blocks and stained sections
Clinical Pathology Service	Haematological and biochemical analysers, ion-selective electrode analyser, gasometer, ELISA reader, spectrophotometers, centrifuges, cytocentrifuge, microscopes, refractometers, etc.
Laboratory of Microbiology and Parasitology	Microscopes (light, inverted and fluorescence microscopes), centrifuges, laminar vertical and linear flow hoods, incubators set at different temperatures, with and without CO ₂ , Real Time thermocycler, electrophoretic devices, fluorimeter, a system for automatized microbial identification (i.e. Vitek, BioMérieux), autoclaves and purified and distilled water devices
Reproduction Facility	Imaging systems (microscopes, magnifying glasses), computer sperm analyser, incubators, embryo-freezer, basic molecular biology equipment and ELISA microplate reader



4. The **Reproduction Facility** offers a full range of techniques to improve the reproductive performance of the VTH, ranging from artificial insemination or embryo transfer to in vitro fertilization in companion and farm animals. It includes the evaluation of male and female reproductive function by using a service called Stallion Stud Service: 40-60 inseminated mares per year, 20-26 doses of refrigerated equine semen obtained every day (between February and June), and 180-200 doses delivered each season all over the country.

A detailed description of the staff involved in diagnostic services is given in Annex 4.1.4.

Department of Animal Health

Some research groups offer support services for the diagnosis of infectious and parasitic diseases of different species. In particular the following services are available:

1. Research Group “SALUVET” offers diagnosis of parasitic diseases in different animal species, mainly ruminants, and some infectious diseases, mostly also of ruminants. In 2015 1,512 samples were tested for serological determinations, mainly *Campylobacter*.

2. Research Group “Epicontrol-carnívoros” offers parasitological diagnosis for dogs and cats (animal protection shelters, kennels, pet shops, etc.) and sporadically to veterinary clinics working with such populations. In 2015 1,701 samples were analysed, predominating faecal material.

-) FSQ & VPH

The FPU of the FVM is equipped with a complete line for cheese production (cheese vat, moulds, steel curd knives, brine vat, pneumatic press, and ripening chamber), and a complete line for sausage production (vertical band saw meat cutter, meat grinder, fine meat mincer, hydraulic sausage stuffer, slicer, convection/steam oven and ripening chamber). The FPU is also equipped with a butter churner machine, burger moulding, incubation chambers, freeze dryer, vacuum/modified atmosphere packaging equipment, gas analyser for modified atmosphere packages, convection/steam oven, autoclaves, and general equipment such as baths, working tables, washing machine, freezers and refrigerators. Moreover, the laboratories are equipped with instruments and reagents for the evaluation of quality and safety of food products, and for testing the microbiological/chemical characteristics of the food handling environment (rapid methods for microbiological analysis of foods; rapid methods for hygiene testing of food handling surfaces equipment, water and air).

Our students also carry out extra-mural practical training in different slaughterhouses, food markets, food industries and reference official laboratories and catering facilities. A complete description of these establishments is given in Annex 4.1.4.

4.1.5. Description of the premises for:

-) study and self-learning

The library has 208 places divided among 7 different size rooms. A complete description of the Library facilities is shown in Chapter 6 (6.1).

-) catering

The FVM has a large cafeteria located in Building-B, with 200 seats and an outdoor terrace. Vending machines are also available in the lobby and rest area of the VTH, as well as in the hall of the FVM Main Building. There are also 2 dining rooms for staff and 2 microwave areas (in the FVM and in the VTH).

-) locker rooms

There are 2 locker rooms at the FVM, other 2 at the VTH, and another one at the Teaching Farm, including different shower rooms.

-) accommodation for on call students

The UCM has an Accommodation Office. Complete information is available on the website <https://www.ucm.es/english/housing-office>.

Table 4.1.5. UCM Halls of residence

Colegio Mayor	Individual rooms	Double rooms	Triple rooms	TOTAL
Antonio de Nebrija	86	22	-	130
Diego de Covarrubias	50	41	-	132
Santa María de Europa	98	64	-	226
Teresa de Jesús	116	16	-	148
Ximénez de Cisneros	120	11	-	142
San Juan Evangelista	243	81	-	405
Associated Halls of Residence	4,139	350	26	4,515

-) leisure

The sport facilities of the UCM are integrated by 5 complexes, which offer a complete infrastructure for the practice of different sports, such as rugby, football, volleyball, beach volleyball, handball, basketball, indoor football, tennis, paddle, gyms, and indoor and outdoor swimming pools. There is also a wide offer of sport schools (<https://www.ucm.es/deportes>). The FVM also counts with some facilities for cultural activities (Auditorium, Graduates Lecture Room, Meeting Room, etc.), student association rooms and some indoor and outdoor rest areas.

4.1.6. Description of the vehicles used for:

Table 4.1.6. FVM vehicles and use

Students transportation	2 vans with 8 seats each (plus one more in the process of acquisition)
Ambulatory clinics	1 VTH vehicle and animal trailer
Live animals transportation	1 vehicle
Cadavers transportation	1 vehicle

4.1.7. Description of the equipment used for:

-) teaching purposes

All classrooms and seminars have appropriate audio-



visual equipment; videoconferencing, video recording and streaming equipment are additionally available. There is also a seminar equipped with a digital

whiteboard, and the necessary software is available in the computer classrooms, as explained in section 6.1.

-) clinical services

Table 4.1.7. Equipment for clinical services

Area	Service	Basic equipment	Specialized equipment
Small Animals Area	Internal Medicine	Available	Ocular ultrasound, retinography, electroretinography, echocardiography, endoscopy
	Surgery Service	Available	Laparoscopy, arthroscopy
	Exotic Animals	Available	Equipment for exotic animal restraint
	Hospitalisation/IC/ER	Available	Ultrasound
Large Animals		Available	Endoscopy, arthroscopy
Central Services	Anaesthesiology Service	Available	Anaesthetic workstations with ventilator and ventilatory and anaesthetic gases monitoring, standard monitoring, BIS, Deltex cardioQ, and Parasympathetic tone activity monitors
	Diagnostic Imaging service	Available	2 X-ray equipment for small animal and exotic pets, 1 X-ray fixed equipment for large animals, 1 X-ray mobile equipment for large animals, 1 computerized radiography (indirect digital) system, 2 ultrasound equipment, one for small animals and other for large animals, 1 low-field MRI system (0.23 Tesla) for small and large animals, and 1 fluoroscopy system for radiographic diagnosis and surgical support
	Pharmacy	Available	Hand-operated capsule-filling machine

4.1.8. Description of the strategy and programme for maintaining and upgrading the current facilities and equipment and/or acquiring new ones.

As explained in Chapter 2, the Financial Committees of the Establishment are responsible for the strategy and the budget distribution, which is subsequently approved at different instances. The maintenance, renewal and acquisition of equipment and facilities depend on the budget availability, which, in turn, depends on the endowment that the UCM assigns to our Faculty. In addition, funds from research activities also contribute to upgrade the FVM facilities and equipment.

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

The UCM has a Unit for Labour Risk Prevention, which is in charge of managing all the aspects of risk prevention, including training for staff and students, and the removal of biosanitary waste and hazardous chemicals. Moreover, the FVM has approved its own waste disposal protocol that complements that service: <https://veterinaria.ucm.es/data/cont/docs/30-2016-12-14-PROTOCOLO%20DE%20RETIRADA%20DE%20RESIDUOS.pdf>.

On the other hand, there is a **Biosecurity Committee** in the FVM, which is responsible for the elaboration of specific protocols, including a document of teaching-related risk prevention. The information is public through the website and significant procedures or signalling displays are posted in the Establishment (<http://veterinaria.ucm.es/bioseguridad>).

First-year students receive specific mandatory training on basic risk prevention through a programme given by the supervisors of this issue both in the FVM and in the

University. Besides, students are trained on biosecurity procedures prior to any practical activity that requires it.

4.2. Comments

A higher autonomy for the management of our budget is desirable, since nowadays the system is centralised in the UCM, which increases bureaucracy. Many significant changes in facilities and equipment have been made since the last EAEVE visitation, as expressed in the Introduction of this SER. However, even if many facilities have been recently renewed, most of the original buildings would need improvement in order to guarantee high-quality teaching and research activities.

The VTH was built in 1998 and, as a whole, the facilities are adequate for providing practical teaching to undergraduate and postgraduate students. Its structure allows teaching in different species and specialties. Nevertheless, facilities and equipment also need appropriate maintenance and replacement, which needs continuous financial support.

The establishment budget allocation has significantly decreased in the last years. These budget cutbacks have caused some operating problems, and prevented the Centre from improving infrastructure and equipment.

4.3. Suggestions of improvement

A specific and periodic budget directed to facilities and equipment maintenance by the University is imperative in order to increase the proportion of referred cases and the quality of clinical activities. The number of classrooms and laboratories should be increased. A project to unify the facilities of different Departments in a new building has been proposed to optimise, share and update resources. This project should be carefully analysed in order to renovate our original buildings.

5. Animal resources and teaching material of animal origin



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5. ANIMAL RESOURCES AND TEACHING MATERIAL OF ANIMAL ORIGIN

5.1. Factual information

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

Our Faculty has the goal of assuring a correct training of the students, based on the official document of the Degree approved by ANECA (ENQA member) in accordance with the EU Directive 2005/36/EC. With regard to the training with animals and material of animal origin, the global strategy of the FVM is to continue and, if necessary, to increase the use of these resources in order to get a correct hands-on preclinical and clinical training. This strategy is based on 4 different pillars: clinical training, preclinical training, teaching farm and learning based on animal training models.

With regard to **clinical training**, the first goal is to maintain or increase the regular functioning of the VTH, in the areas of both small and large animals, as the main source for the clinical training of the students. Other significant priority is to correct the possible imbalance among different animal species.

Concerning small animals, even if the number of cases was adequate, the VTH appointments were initially scheduled only in the mornings. Since 2012, two of the consulting rooms have extended the work schedule two hours a day, and 22 new consultations are now open during the afternoon/evening.

At the same time and trying to achieve the same objective, new specialties and services have been opened at the VTH, such as the Magnetic Resonance Imaging Unit, the Unit of Regenerative Medicine, the Unit of Minimally Invasive Surgery in Cardiology, the Service of Electrophysiology Diagnosis and the Service of Transesophageal Echocardiography. These measures have resulted in an increase in the number of first-opinion and referral cases.

The FVM is located in an urban area and, thus, the number of small animals attended intra-murally is higher than that of horses and, especially, food-producing animals. Being aware of this situation, another important strategic line has been to strengthen the clinical training in horses and cattle. This goal is being addressed by increasing the number of teachers attending large animals extra-murally, and increasing the number of large animals attended intra-murally.

As explained in Chapter 5 (5.1.2), the Establishment has hired teachers with a multidisciplinary clinical profile which enables an integrated training in Large Animal Internal Medicine, Surgery and Reproduction. This strategy can also result in a potential increase of hospitalised referral cases. On the other hand, the FVM maintains significant active agreements with the two

Police Departments working in the area: the National and the Council Police Departments. These agreements include clinical attention for their working animals, especially horses and dogs.

With regard to **preclinical training**, the strategy of the FVM is based on the maintenance of agreements with external entities that warrant a sufficient number of cadavers and materials of animal origin, as explained in chapter 5.1.5. In recent years, the Establishment has acquired live large animals for preclinical training when necessary, taking into account concerns on animal welfare.

Other strategic pillar related with preclinical/clinical/animal production training is the **Teaching Farm**. The FVM has promoted this premise with the implementation of three new facilities (a new Rabbit Unit, a Farm Laboratory and a Farm Classroom) and the remodelling of several units. Considering the difficulties of housing farm animals, due to economic and geographical reasons, the FVM has enhanced the student training in many external farms and other animal production facilities. For this purpose, our Establishment has promoted the engagement of part-time Associate Teachers (currently 7) who work as Consultants or Practitioners in different food-producing animal species (small ruminants, cows, swine and poultry).

Finally, we are working on the acquisition of **animal dummies** and simulators, with the purpose of completing the training of our students. This kind of training does not expect to replace the hands-on training on live patients, but it is based on an effort to reduce the use of live animals in veterinary training, when possible. Within this programme, the FVM has acquired animal models, especially for teaching small animal clinical examination, vein puncture, cardiology, traumatology, orthopaedics and anaesthesiology.

5.1.2. Description of the specific strategy of the Establishment in order to ensure that each student receives the relevant core clinical training before graduation, e.g. numbers of patients examined/treated by each student, balance between species, balance between clinical disciplines, balance between first opinion and referral cases, balance between acute and chronic cases, balance between consultations (one-day clinic) and hospitalisations, balance between individual medicine and population medicine

The number and distribution of cases is evaluated annually by the VTH Board and by the Faculty Council in order to communicate significant changes and/or to propose new strategies, if needed. The VTH assures that the students receive an adequate practical training, taking into account the extensive client portfolio which allows the students to acquire the clinical Day One Competences.

The distribution of the clinical training hours by subject is based on the official distribution of the FVM syllabus.



Clinical subject	Hours (%)
Medicine	28.7
Surgery	25.3
Diagnostic Imaging	10.5
Anaesthesia	8.4
Extra-mural Mobile Clinic	10.5
Obstetrics and Reproduction	16.5

The number of intra-mural cases attended at the VTH is, in general, high, as expressed in Chapter 12 (ESEVT Indicators). As mentioned, the VTH receives a higher number of small animals and horses, in comparison to ruminants and food-producing animals in general.

With regard to **small animals and exotic animals**, 90% of the cases attended in the General Medicine Consultation are **first-opinion cases**. This allows an adequate training of the student in the clinical approach of common diseases, from the beginning of a case.

The average of **referral cases** attended in Specialty Consultations is 30%. The frequency of referral cases reaches 50% in Endocrinology and Haematology, 60% in Gastroenterology and Physiotherapy, and 90% in some diagnostic procedures such as Endoscopy.

The percentage of referral cases in Equine Medicine is around 95%, while it is very low in food-producing animals, if referral cases are considered *sensu stricto*. Most food-producing animals attended at the VTH have been previously attended by the Associate Teachers working in the Mobile Clinic, who transfer directly the cases to the VTH, when necessary. Ninety percent of the ruminant clinic practice is extra-mural, due to the urban location of our Establishment.

The balance between **acute and chronic cases** differs significantly depending on the animal species. For small animals, the percentage of chronic cases is higher, and may reach 85%, while for large animals almost 65% of cases are acute (specially in horses).

With regard to the balance between **consultations** (one-day clinic) and **hospitalisations**, 92% of small animals are attended in consultations and 8% of cases remain hospitalised. On the other hand, 65% percentage of horses need to be hospitalised, while 35% are attended on a one-day clinic basis.

Finally, around 12.5% of our clinical activities are focused on population medicine, while 87.5% rely on individual medicine.

5.1.3. Description of the organisation and management of the teaching farm(s) and the involvement of students in its running

The Teaching Farm is managed by a Committee that always prioritises teaching over research. Among other functions, this Committee proposes and approves the Heads of the different Breeding Units, and coordinate the use of the Farm facilities for teaching and research. Students receive staggered practical training in the subjects Basis of Animal Production I (Year 1, Semesters 1-2), Animal Nutrition (Year 2, Semester 3), Breeding and Animal Science I (Year 3, Semesters 5-6), and **Rotation in Animal Production** (Year 5, Semester 10).

The involvement of the students in the Teaching Farm is as follows:

Sheep Unit. During their practical training, students learn about the behaviour, handling techniques, feeding and welfare, related with sheep lambing, perinatal care, lactation, evaluation of growth and assessment of body condition. They also perform reproductive control in the herd, carry out oestrus synchronization techniques and directed natural mating, and pregnancy diagnosis by ultrasound.

Rabbit Unit. This unit contains a permanent population that is considered as an endangered local breed (Ibicenco Rabbit). Students are directly involved in nutrition, handling, management, animal welfare and breeding. They work on feed consumption, collect faeces and analyse digestibility. Students apply reproductive techniques (artificial insemination, semen examination) and collect performance data for genetic studies.

Poultry Unit. Students work on the management of layer hens and broilers, and on the effect of diet on egg and meat quality and production. All students participate in grinding, weighing and mixing the ingredients, vitamins and minerals included.

In order to complete their training in food-producing animals, students work with other animal species in different external farms and other animal production facilities through agreements with more than 60 entities (see Annex 5.1.3). Training on Animal Production, Food-Producing Animal Preventive Medicine, and Population Medicine allow the students to practice in farms of different animal species, including cattle (beef and dairy cows and feedlots), small ruminants, swine (all production phases) and poultry (broilers and layer hens). The size of the farms may vary depending on the animal species. In the year 2015/2016 the size of the farms ranged from 170 to 1,200 dairy cows; from 14 to 800 beef cows or feedlot animals; from 400 to 1,300 sheep or goats; from 14,000 to 120,000 broilers; from 200,000 to 1,000,000 hens; and from 520 and 2,500 sows.

Besides, in the case of cattle, the Ruminant Mobile Clinic also deals with Production Medicine (farm animal management, feeding, welfare and reproduction).



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

The following Table shows the timetable of the different VTH Services where the students practice intra-murally.

Area	Service	Specialty	Days/week	Opening hours	Weeks/year
Small Animals	Medicine	General Medicine	M-F	10:00-14:00	40*
			W	16:00-18:00	
		Gastroenterology	Tu, W, Th	10:00-14:00	
		Dermatology	M, W, F	10:00-14:00	
			M, Th	16:00-18:00	
		Cardiology	Tu, F	10:00-14:00	
			Th	16:00-18:00	
		Neurology	M, W	10:00-14:00	
			Tu	16:00-18:00	
		Nephrology and Urology	Tu	10:00-14:00	
			W	16:00-18:00	
		Haematology	F	10:00-14:00	
		Endocrinology	M, Th	10:00-14:00	
			W	16:00-18:00	
	Ophthalmology	Tu, W, F	10:00-14:00		
		M, Th	16:00-18:00		
	Oncology	Tu, F	10:00-14:00		
		W	16:00-18:00		
	Hepatic diseases	Th	10:00-14:00		
	Infectious diseases	M-Th	10:00-14:00		
		W	16:00-18:00		
	Exotic animal Medicine		M-F	10:00-14:00	
			Tu	16:00-18:00	
Surgery	General Surgery	M-Th	10:00-14:00		
		Th	16:00-18:00		
	Orthopaedics	M-F	10:00-14:00		
		Tu, Th	16:00-18:00		
	Rehabilitation and Physiotherapy	Tu, F	10:00-14:00		
	Dentistry	Tu, Th	10:00-14:00		
	Neurosurgery	F	10:00-14:00		
	Surgery Operating Rooms (by appointment)	M-F	According to needs		
Surgery Operating Rooms (ER)	M-Su	24 h	48**		
Hospitalisation, IC and ER		M-Su	24 h	48**	
Large Animals	Equine Medicine (by appointment and emergencies)		M-Su	24 h	52***
	Equine Surgery	By appointment	M, W	10:00-14:00	40*
		Emergencies	M-Su	24 h	52**
Ruminant Medicine and Surgery		M-F	According to needs	40*	
Central Services	Anaesthesia	By appointment	M-F	According to needs	40*
		Emergencies	M-Su	24 h	52***
	Diagnostic imaging		M-F	10:00-14:00	40*
			Tu-Th	16:00-18:00	40*
	Clinical Pathology Lab (sample reception)		M-F	10:00-15:00	52***
			W	16:00-18:00	40*
	Pathology Lab (sample reception)		M-F	9:00-14:00	40*
			M-Th	15:00-16:30	40*
	Microbiology and Parasitology Lab (simple reception)		M-F	10:00-15:00	40*
	Reproduction	Small Animal Consultation	M, W, F	10:00-14:00	40*
Reproduction Laboratory		M-F	According to needs	40*	
Stallion Service		M-F	According to needs	20****	

* September-July (both included), except Christmas and Easter

** Entire year, except August

*** Entire year

**** February-June



In the *Small Animal Area*, the Emergency Service is available for all animals having a medical record at the VTH, and also for all dogs coming from institutions with specific agreements with the VTH, such as the National and the Local Police Departments. Altogether, this comes up to a population of more than 20,000 animals that can be admitted at ER. Life-threatening emergencies are always admitted. The interns on duty are responsible for evaluating emergencies and calling the emergency surgeon/anaesthetist/specialist, if necessary. This ER Service is available 7 days a week, 24 hours a day during the entire year, except in August.

In the *Large Animal Area*, the Emergency Service receives medical and surgical emergencies 24 hours, 365 days a year. There is always a Medicine clinician, a surgeon and an anaesthetist on call; the interns on duty receive the emergency patient (or emergency phone call) and, if necessary, call in the rest of the clinical team.

Ambulatory clinic is carried out by part-time Associate Teachers that are private practitioners of recognised standing. There are 9 teachers participating in the Mobile Clinic, including 4 belonging to the Equine and 5 from the Ruminant Mobile Clinic. Clinicians perform their functions in their own private vehicles (9 cars). Large animals requiring immediate attention must be brought to the VTH, either in private vehicles or in the VTH vehicles. Considering that ambulatory clinic is attended by practitioners, emergencies are also attended 24 hours a day, 365 days a year. The teachers responsible for the Mobile Clinic visit a large number of farms or studs. They visit on average 3 different centres per day and per teacher (ranging 1-7). Our Mobile Clinic usually visits around 108 studs of different size: 56 centres with 5-29 horses, 42 centres with 30-99 horses, and 10 centres with 100 horses or more, including racecourse facilities where more than 400 horses are usually living. With regards to ruminants, our clinic routinely visits around 138 farms

(including dairy and beef cattle farms, both intensive and extensive). Seventy-five of them are small farms with less than 100 animals, 56 include 100 to 400 animals, and 7 farms have 400 animals or more (see Annex 5.1.4).

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

For practical training in **Anatomy**, fresh, frozen and fixed materials are generally used. Cadavers of dogs and cats come from local animal protection centres. Horse, ruminant and swine specimens are obtained from regional slaughterhouses. Chickens, rabbits and exotic animals are collected from farms, animal houses, private clinics, recovery centres and zoos. Several other animal products, such as embryonated eggs, are obtained from poultry farms. Foetuses with congenital malformations are provided by private practitioners. Cadavers of dogs that are used for dissection are: either embalmed on-site by the Veterinary Faculty staff and stored at +4°C or stored at -20°C for non-preserved dissection. Cadavers of other species are also stored at -20°C for non-preserved dissection. Furthermore, the Anatomy Department has a bone storage room with hundreds of bone pieces.

With regard to cadavers for training in **Pathology**, animals are obtained from the VTH, farms, outdoor veterinary clinics and other external entities, as well as from clients that send their animals to be necropsied for diagnostic purposes. Animals for private diagnosis are processed as soon as they arrive or they are maintained in refrigeration (0-4°C) until the following day, if necessary. The rest of the animals are usually preserved frozen at -18°C.

Both the cadavers and the different specimens used in practical classes are collected by services of the city of Madrid that properly dispose them by incineration.





5.1.6. Description of the group size for the different types of clinical training (both intra-murally and extra-murally)

Students are distributed in groups (16 groups in the last academic year). The number of students per group can slightly vary depending on the number of enrolled students. There were 3-4 students per group during the academic year 2014/2015, and 5-6 during the academic year 2015/2016. Groups are usually subdivided in different simultaneous intra-mural activities (Specialty clinics or other activities from the same Service) supervised by different teachers, in order to reduce the student:teacher ratio, that is never higher than 4. The maximum number of students per professor in the Mobile Clinic is 2-3. Extra-mural activities of Preventive Medicine and Population Medicine include the complete group. The following Table summarizes the size of the groups in each clinical rotation.

	No. of groups working simultaneously in the same activity	No. students-to-teacher (and per clinical case, if appropriate)
Small animal Medicine	2	Students distributed in 4-5 Specialty Consultations every day. Maximum ratio 4:1
Infectious and Parasitic Diseases Consultation and Laboratory	1	Maximum ratio 4:1
Small Animal Surgery	2	Students distributed in 3 Specialty Consultations and, at least, 2 Surgery Operating Rooms every day. Maximum ratio 4:1
Small Animal Anaesthesia	1	Students distributed by clinical case and professor (2 every day). Maximum ratio 4:1
Diagnostic imaging	1	Students distributed, at least, in Radiology and Ultrasound Units. Maximum ratio 4:1
Pathology	1	Necropsy room attended by 2 professors every day. Maximum ratio 4:1
Large Animal Area (intra-mural)	2	Complete group/professor (and clinical case)
Ambulatory Clinics	1	Students distributed in 3 groups (3 professors). Maximum ratio 2:1
Population Medicine	1	Complete group/professor

5.1.7. Description of the hands-on involvement of students in clinical procedures in the different species, i.e. clinical examination, diagnostic tests, blood sampling, treatment, nursing and critical care, anaesthesia, routine surgery, euthanasia, necropsy, report writing, client communication, biosecurity procedures, .. (both intra-murally and extra-murally)

The students are directly involved in all the clinical procedures developed both in the VTH and extra-murally.

Specific activities depend on the area where the student is working, and at least include:

First-opinion and Specialty Consultations, both medical and surgical, in all animal species

- To carry out the patient (or the population) anamnesis and complete physical examination, including neurologic, orthopaedic and ophthalmologic exam, depending on the clinical case.
- To analyse the nutritional and welfare status in individual and population medicine.
- To prepare the list of problems, differential diagnoses, working plan and therapeutic approach.
- To effectively communicate with the client.
- To make diagnosis procedures: fine-needle aspiration cytology, blood and urine sample collection, blood pressure, Schirmer test, ocular tonometry, skin scrapings, electrocardiogram, faecal smear, Pap smear, etc.
- To apply therapy: through different routes of drug administration (PO, SC, IM, IV).
- To assist in other diagnostic and therapeutic procedures, such as endoscopic protocols, cerebral spinal fluid analysis, skin biopsy, chemotherapy administration, euthanasia, etc.
- To put bandages and other immobilization techniques.
- To write medical records and to elaborate reports.

Hospitalisation and emergencies, both medical and surgical, in all animal species

- To perform first aid procedures, when necessary.
- To review the history, to evaluate the patient through physical exam (TPR) and to actualize the clinical record.
- To prepare the list of problems, differential diagnoses, working plan and therapeutic approach.
- To carry out routine diagnosis procedures in hospitalised animals: blood and urine sample collection, blood pressure, etc.
- To work in different therapeutic procedures: placement of IV catheters, fluid therapy (choice of fluid, dose calculation and administration), drug administration by different routes, placement of urinary catheters, bandage, wound cleaning and dressing, and other post-surgical care procedures.
- To design and to administrate nutritional therapy for hospitalised cases.
- To assist in other diagnosis/therapeutic procedures, such as feeding tube placement, drainage tube placement and effusion drainage, blood transfusion, endotracheal intubation and mechanical ventilation, euthanasia, etc.
- To apply biosecurity procedures, and more especially in isolated cases.
- To effectively communicate with the client.
- To write medical records and to elaborate reports.

Surgery Operating Rooms (in all animal species)

- To participate in the preparation of surgeries (surgical material, room and patient), taking into account biosecurity rules and the concept of aseptic surgery. To



perform by themselves easy surgical procedures (ovariohysterectomy, orchietomy, tumour exeresis, etc.).

- To assist the surgeon in complex surgeries (assistant surgeon).
- To suture the surgical wounds and to place bandages and drains, when necessary.
- To be responsible for the immediate post-operative care of surgery cases.
- To effectively communicate with the client.
- To write medical records and to elaborate reports.

Anaesthesia (in all animal species)

- To evaluate the pre-anaesthetic status of the patient.
- To discuss and to design the anaesthetic protocol to apply in every case and procedure.
- To carry out all the complementary work, including fluid therapy administration, local anaesthesia or intubation.
- To administrate the anaesthetic protocol previously validated by the teacher.
- To monitor the anaesthetic procedure (including induction, maintenance and recovery) and to be capable of taking decisions, when necessary.

Diagnostic Imaging (in all animal species)

- To collaborate with patient positioning.
- To start ultrasound studies and to assist the teacher in complete studies.
- To discuss and to interpret results of radiological and ultrasound studies and to write reports based on diagnostic imaging.
- To participate in magnetic resonance imaging and computed tomography, when necessary.

Necropsies (in all animal species)

- To review the animal individual/population history.
- To make a complete and systematic necropsy, discussing the macroscopic findings and determining their relationship with the clinical findings.

Large animal reproduction

- To make rectal palpation.
- To assist in different procedures usually performed in cattle reproduction (especially, ultrasound).
- To assist in different procedures related to the Stallion Stud Service (e.g., semen contrast and dilution, artificial insemination, mare breeding, etc.).

Preventive Medicine/Population Medicine (cattle, small ruminants, pigs and poultry)

- To assess the biosecurity measures on farms of different animal species.
- To evaluate the welfare conditions of animals of different ages and physiological states.
- To assess the possible role of environmental conditions as predisposing factors for disease in animals of different ages and physiological states, and to evaluate environmental control systems in poultry and pig farms.
- To clinically evaluate animals in order to identify potential disease indicators.

- To evaluate the body condition of animals and the feeding programme of the population.
- To review the health and preventive medicine programmes implemented in different farms.
- To collect biological samples (especially blood and milk), significant in Medicine Population for diagnosis of different types of diseases.
- To perform necropsies (in case of any casualty in the operation).
- To review mastitis control programmes in ruminant dairy farms.
- To describe and to analyse data record (including the use of management programmes in farms in which they are routinely used).
- To apply sanitary programmes.
- To perform different on-farm common practices as reproductive control (pregnancy diagnosis, insemination).

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

Before starting the daily activity in all the Consultations, Hospitalisation and Surgery Operating Rooms, students have a **round** with the responsible teachers. In this round, they review the appointed cases and, if previously attended, they discuss about the procedures that have already been performed, and the approach for the next visit. At the end of the consultation, students analyse and discuss with the teacher about the patients they have attended.

In the case of Anaesthesia, the students should have reviewed the appointed cases in advance, checking the pre-surgical evaluation through a database that is open to the students and that they can use at home. They should come to the rotation with a designed anaesthetic protocol that is discussed in the round. In the rotation of necropsies, the students review the clinical record, evaluate the diagnostic and therapeutic procedures previously performed and, after that, they discuss with the teacher the potential relationship with the lesions found during the necropsy.

As explained in Chapter 3 (3.1.9), when finishing a specific rotation, students select and present a **clinical report** about a clinical case/group of animals among those directly attended by them. They should include their personal participation, and a complete critical discussion based on the literature, which allows them to improve their understanding of the case. At the end of all rotations each student presents 12 reports: 1 for Small Animal Medicine, 1 for Small Animal Surgery, 1 for Anaesthesia, 1 for Diagnostic Imaging, 1 for Pathology, 2 for Large Animal Clinic (1 for horses and 1 for cattle), 1 for Small Animal Infectious/Parasitic Diseases, and 4 for Population Medicine (cattle, small ruminants, pigs and poultry, respectively).



5.1.9. Description of the patient record system and how it is used to efficiently support the teaching, research, and service programmes of the Establishment

Qvet® software is used as client and patient database for all the VTH patients. This computer program is used for appointments, billing, pharmacy dispensing, sales, etc. The majority of the hospital management information is administered by this software. It is open to staff and students and is available in computers located in the administration service and in all the clinical services of the VTH, including consulting rooms. Qvet® is also used to record all the clinical activities. Additionally, each patient has a hard copy record which is used by students and clinicians to register additional information not included into Qvet®.

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

The use of animals for experimental and education purposes is regulated by the Spanish transposition of the Directive 2010/63/EU on the Protection of Animals used for Scientific Purposes. Therefore, all procedures must be approved by the institutional Ethics and Animal Welfare Committee and, finally, the competent authority (<https://www.ucm.es/cea>). Such approval requires the application of the 3R concept of reduction in the number of animals employed, refinement of the procedures employed, and replacement by alternative methods. Exemptions are those procedures below the established threshold, such as those where moderate animal handling is performed (e.g., basic physical exam). Currently most teaching clinical procedures are

performed at the VTH with client-owned patients, and the number of practical activities with experimental animals has been significantly reduced.

The animal facilities of the Establishment are under the institution administrative responsibilities. All the facilities are managed by qualified animal facility directors. Both, an animal welfare officer and a veterinarian supervise the welfare and health of animals, following the European and Spanish regulations. At this time our Establishment has 6 facilities officially approved for animal research.

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

The teachers responsible for each preclinical and clinical subject of the Degree design a teaching programme on the basis of the syllabus contents. The approximate number and variety of animals and animal materials to be used for optimal training is defined. This programming is done five to six months before the academic year starts. The programming is raised for discussion and approval to different governing bodies such as the Department Council, the VTH Board and the Faculty Council. These schedules are made public on the FVM website. All the information is evaluated annually by the Committee for Assessment and Improvement of the Curriculum, which is responsible for preparing a report that is submitted for the approval of the Faculty Council. All the Faculty collectives (academic staff, support staff and students) are represented in the governing bodies.

Table 5.1.1. Cadavers and material of animal origin used in practical anatomical training

Species	2015/2016	2014/2015	2013/2014	Mean
Pigs				
Live animals	1	1	1	1
Cadavers	4	4	4	4
Specimen	50 brains	50 brains	50 brains	50 brains
	50 eyes	50 eyes	50 eyes	50 eyes
	8 tongues and larynx			
	9 lungs	9 lungs	9 lungs	9 lungs
	8 hearts	8 hearts	8 hearts	8 hearts
	12 stomachs	12 stomachs	12 stomachs	12 stomachs
	6 intestines	6 intestines	6 intestines	6 intestines
	12 livers	8 livers	8 livers	8 livers
	12 spleens	12 spleens	12 spleens	12 spleens
	8 kidneys	8 kidneys	8 kidneys	8 kidneys
	16 genitals	16 genitals	16 genitals	16 genitals
	6 hoofs	6 hoofs	6 hoof	6 hoof



Species (cont.)	2015/2016	2014/2015	2013/2014	Mean
Small ruminants Specimen	55 brains 50 eyes 6 tongues and larynx 8 lungs 6 hearts 12 stomachs 8 intestines 6 livers 12 spleens 10 kidneys 30 genitals 6 hoofs	55 brains 50 eyes 6 tongues and larynx 8 lungs 6 hearts 12 stomachs 8 intestines 6 livers 12 spleens 10 kidneys 30 genitals 6 hoofs	55 brains 50 eyes 6 tongues and larynx 8 lungs 6 hearts 12 stomachs 8 intestines 6 livers 12 spleens 10 kidneys 30 genitals 6 hoofs	55 brains 50 eyes 6 tongues and larynx 8 lungs 6 hearts 12 stomachs 8 intestines 6 livers 12 spleens 10 kidneys 30 genitals 6 hoofs
Cattle Specimen	20 heads 20 brains 20 eyes 2 tongues and larynx 4 lungs 6 hearts 2 stomachs 4 livers 2 spleens 6 kidneys 6 genitals 4 hoofs	20 heads 20 brains 20 eyes 2 tongues and larynx 4 lungs 6 hearts 2 stomachs 4 livers 2 spleens 6 kidneys 6 genitals 4 hoofs	- 20 brains 20 eyes 2 tongues and larynx 4 lungs 6 hearts 2 stomachs 4 livers 2 spleens 6 kidneys 6 genitals 4 hoofs	13.3 heads 20 brains 20 eyes 2 tongues and larynx 4 lungs 6 hearts 2 stomachs 4 livers 2 spleens 6 kidneys 6 genitals 4 hoofs
Equine Specimen	24 heads 1 spinal cord 2 tongues and larynx 8 lungs 6 hearts 4 stomachs 4 livers 4 spleens 6 kidneys 10 genitals 6 hoofs 3 forelimbs 3 hind limbs	20 heads 1 spinal cord 2 tongues and larynx 4 lungs 6 hearts 2 stomachs 2 livers 2 spleens 6 kidneys 10 genitals 6 hoofs 3 forelimbs 3 hind limbs	24 heads 1 spinal cord 2 tongues and larynx 4 lungs 6 hearts 2 stomachs 2 livers 2 spleens 6 kidneys 10 genitals 6 hoofs 3 forelimbs 3 hind limbs	22.6 heads 1 spinal cord 2 tongues and larynx 5.3 lungs 6 hearts 2.6 stomachs 2.6 livers 2.6 spleens 6 kidneys 10 genitals 6 hoofs 3 forelimbs 3 hind limbs
Poultry & rabbits Cadavers Other	66 380 embryonated eggs	81 300 embryonated eggs	81 300 embryonated eggs	76 326.6 embryonated eggs
Exotic pets Live animals Cadavers	24 162	24 162	24 162	24 162
Others (specify)	100 Trout 200 Mussels 100 Squids 200 Crayfish 200 Snails			



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

Species	2015/2016	2014/2015	2013/2014	Mean
Cattle	30	30	30	30
Small ruminants	48	48	48	48
Pigs	0	0	0	0
Companion animals	31	31	24	28.6
Equine	11	11	11	11
Poultry & rabbits	516	370	370	418.6
Exotic pets*	42	42	42	42
Rodents	60	60	60	60

*4 bearded dragon (*Pogona viticeps*), 6 terrestrial quelonians, 6 aquatic turtles, 10 small birds, 6 rabbits and 10 sugar gliders (*Petaurus braviceps*)

Table 5.1.4. Number of patients seen extra-murally

Species	2015/2016	2014/2015	2013/2014*	Mean
Cattle	3,380	2,872	-	3,126
Small ruminants	159	148	-	153.5
Pigs**	15,120	9,520	-	12,320
Companion animals	0	0	-	0
Equine	561	360	-	460.5
Poultry & rabbits**	3,542,800	3,456,800	-	3,499,800
Exotic pets	0	0	-	0

*The students did not attend patients extra-murally during the academic year 2013/2014 due to the change in the syllabus schedule

**These data correspond to the total census of the farms visited by the students. Due to the usual production systems for these species in our country, the work of the veterinarian only includes sporadic individualized care of patients belonging to these species

Table 5.1.6. Cadavers used in necropsy

Species	2015/2016	2014/2015	2013/2014*	Mean
Cattle	37	6	-	21.5
Small ruminants	81	8	-	44.5
Pigs	111	36	-	73.5
Companion animals	165	290	-	227.5
Equine	24	14	-	19
Poultry & rabbits	98	74	-	86
Exotic pets	8	10	-	9
Mice	40	40	-	40
Other farm animals	0	3 minks	-	1.5

*The students did not perform necropsies during the academic year 2013/2014 due to the change in the syllabus schedule

Table 5.1.3. Number of patients seen intra-murally

Species	2015/2016	2014/2015	2013/2014	Mean
Cattle	56	35	38	43
Small ruminants	82	44	8	44.6
Pigs	25	15	1	13.6
Companion animals*	7,953 (23,484)	6,960 (23,221)	6,555 (21,772)	7,156 (22,825)
Equine*	293 (2,206)	248 (1,754)	202 (1,450)	247.6 (1,803)
Poultry & rabbits	0	0	0	0
Exotic pets	365	297	368	343.3

*When the number of visits is significantly different from the number of attended animals, the number of visits has been included in brackets. Our data system does not differentiate if a visit is due to the same or to a different condition

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

Species	2015/2016	2014/2015	2013/2014	Mean
Cattle	100	100	100	100*
Small ruminants	100	100	100	100*
Pigs	100	100	100	100*
Companion animals	70	70	70	70
Equine	5	5	5	5
Poultry & rabbits	-	-	-	-
Exotic pets	80	80	80	80

*Most food-producing animals attended at the VTH have been previously attended by the Associate Teachers working in the Mobile Clinic, who have transferred directly the cases, when necessary

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

Species	2015/2016	2014/2015	2013/2014*	Mean
Cattle	345	303	289	312.3
Small ruminants	68	66	52	62
Pigs	34	33	1	22.6
Poultry	46	46	16	36
Rabbits	16	8	8	10.6
Others:				
National Centres for Animal				
Reproduction	6	6	10	7.3
Horse studs	4	4	0	2.6

*Due to the change in the syllabus schedule, the subject Preventive Medicine was not imparted during the academic year 2013/2014



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

Species	2015/2016	2014/2015	2013/2014	Mean
Ruminant's slaughterhouses	29	28	25	27.3
Pig's slaughterhouses	4	3	3	3.3
Poultry slaughterhouses	2	2	2	2
Related premises:				
Fish central market	8	7	6	7
Meat industries	5	5	4	4.6
Fish industries	5	5	4	4.6
Catering industries/central kitchens	9	8	7	8.0
Others (Reference off. laboratory)				
Official reference laboratories	6	6	5	5.6

5.2. Comments

The VTH policy is to encourage an increase of case referrals. In order to do that, appropriate measures are put in place to ensure that the system works adequately based on a trust relationship with the referring practitioners, and trying to avoid competition. In this way, the owners of referred animals are encouraged not to come to the VTH for diagnosis or treatment of other diseases without the knowledge of their veterinarian. Nevertheless, a balance is needed because keeping a significant number of first-opinion cases provides valuable material for teaching, considering that those are the cases that our students will face most frequently after graduation.

The number and variety of small animal cases is sufficient for a proper skill acquisition. Besides, a new agreement with SEVEMUR, the Official Emergency Veterinary Service of the City of Madrid, will make it possible that our students carry out other 24-7 service practice extra-murally, in addition to the intra-mural practicals in the Service of Hospitalisation and ER of the VTH. SEVEMUR is currently managed by VISAVET.

During the last 5 years, the strategy of our Faculty has included the reinforcement of the clinical training in food-producing animals. We have made substantial efforts to increase the number of cattle attended intra-murally, by encouraging farmers to send sick animals to the VTH rather than being sent directly to the slaughterhouse. However, farmers can rarely afford to transport their animals to the VTH. This situation is balanced by an increasing number of animals attended extra-murally. In this sense, as explained, full-time and part-time personnel committed for extra-mural training have been hired in the last academic years.

5.3. Suggestions for improvement

Our teaching procedures have been revised over the last years in order to minimise the use of live animals. The use of dummies has increased, although with budgetary constraints. A purpose-made laboratory with alternative methods should be developed.

The material available for pathology teaching in food-producing animals is not abundant, due to the reluctance of farmers to demand necropsies, except when a severe health concern is present in the population. This problem is overcome by collecting viscera from slaughterhouses. In the case of small animals, a new animal protection law in our region does not allow euthanasia in protection centres, except in exceptional cases. This law will come into force in February 2017, and it will entail a significant reduction in the number of cadavers coming from those centres. In view of this, the FVM has reached an agreement with the Animal Protection Centre of the City of Madrid in order to receive cases for their exclusive use for educational purposes.

Budgetary cutbacks have limited investments in equipment and facilities during the last years, making reinvestment necessary. As an example, the vehicles used by the teachers for the Mobile Clinic are their own private vehicles, and unfortunately they are not subsidised by the University.



6.

Learning resources



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6. LEARNING RESOURCES

6.1. Factual information

6.1.1. Description of the main library of the Establishment

The FVM Library is part of the integrated **UCM Library** network, which is **the second largest in the country**, responsible for the management of joint ventures and the organisation of library services at university level. To harmonise cooperation, a collegium of the Heads of Health Sciences Libraries has been established and serves as a forum for discussing professional matters.

The Library of the Complutense University of Madrid (BUC) has created purchasing groups for subscribing databases which are necessary for different academic institutions. Within those consortiums the University and the FVM have access to several resources, such as Web of Science, Science Direct, Scopus, FSTA Direct, Medline, Elsevier Freedom Collection, etc. The FVM Library has a split management: financially it reports to the Faculty Manager and functionally to the Director of the BUC. It also provides bibliographic and information services, search services and guidance for the evaluation of researchers (727 requests in 2015). The University repository, called E-PRINTS (<http://eprints.ucm.es/>), is a good means for promoting the scientific output of the FVM, covering PhD dissertations, articles, conferences, etc., in full text. The Library offers assistance for lecturers and researchers in uploading their bibliographies. It also disseminates information through social networks such as Facebook and Twitter.

-) staff (FTE) and qualifications

There are 8 full-time employees at the FVM Library (1 director, 2 reference librarians and 5 library assistants). The Library staff keeps its knowledge up-to-date through regular training.

-) opening hours and days

The FVM Library opens from Monday to Friday, from 9 a.m. to 9 p.m. It is closed during Christmas and Easter. Since 2013, the opening hours have been extended until 11 p.m. during the exam period (February and June).

-) annual budget

The annual budget of our Library from specific Faculty funds is 68,614€. On the other hand, it is a part of the BUC, which has a global budget of more than 2 million€.

-) facilities: location in the campus, global space, number of rooms, number of seats

The Library is located in the FVM central building and occupies a total area of about 1,000 m², divided into the following sections: a general reading room (355 m²; 140 reading places), a multipurpose room (136 m²; 48 reading places), a storeroom (306 m²), a staff working area (70 m²), three rooms for group work (72 m²; 20 reading places) and 2,855 m of shelving.

-) equipment: number of computers, number of electrical connections for portable PC available software's for bibliographical search

There are 17 computers, 15 laptops and a scanner for the students use. The number of computers is sufficient, since most of the students bring their own laptops or tablets to the reading room. Power supply and wireless connection to the Internet are available for the FVM community.

-) number of veterinary books and periodicals

There are 36,837 books, 6,639 of them available in the reading room and 91 hard copy journals.

-) number of veterinary e-books and e-periodicals

With regard to full access electronic journals, there are more than 19,000 e-resources through institutional acquisition. Furthermore, there are 160 textbooks in electronic format (70 directly acquired or subscribed by the FVM).

-) number of other (e)books and (e)periodicals

90,621 e-books and 37,413 e-periodicals

Our students can use, any Faculty Library from UCM. Given the proximity to the FVM (400 m), capacity (2,000 reading places) and opening hours (24 a day during exams), the most visited is the María Zambrano Library.

6.1.2. Description of the subsidiary libraries

There are subsidiary libraries at almost all our Departments. The Library of the FVM is responsible for processing materials for departmental libraries, thus every new volume is included in the open public catalogue (CISNE: <http://cisne.sim.ucm.es/>). Except for a few manuals used on a daily basis at laboratories, books are available for borrowing or inter-lending from the Departments as well.

6.1.3. Description of the IT facilities and of the e-learning platform

There are 2 computer technicians at the FVM to support students and academic staff. We have 3 computer laboratories with a total of 72 computers. The students have free access to these facilities whenever they are not being used for teaching activities, which can be previously checked by means of a QR code. Basic software (Microsoft package) is installed on computers, as well as statistical software, such as SAS and R, and any other computer programs required for the regular development of subjects.

Additionally, students can also contact the UCM IT service for technical assistance (<https://www.ucm.es/ssii/atencion-al-usuario>).

The UCM provides a Virtual Campus with the e-learning platform Moodle, where all the Degree subjects are virtualised. Postgraduate studies are also included in the Virtual Campus. This learning environment is also accessible from mobile devices.



6.1.4. Description of the available electronic information and e-learning courses, and their role in supporting student learning and teaching in the core curriculum

The FVM Library offers an introductory course for new students on its use and services; different courses on the use of bibliographic databases (PubMed, Web of Science, Scopus, FSTA), citation tools (RefWorks, Zotero, Mendeley, EndNote online, EndNote X7) and the fundamentals of scientific writing. The participation of the Library staff is also required for postgraduate and continuing education programmes.

Currently our Faculty is offering, in collaboration with L'École Nationale Vétérinaire d'Alfort (France), the first MOOC given by the UCM, through one of the most prestigious British online platforms, Future Learn (<https://www.futurelearn.com/courses/animal-viruses>).

6.1.5. Description of the accessibility for staff and students to electronic learning resources both on and off campus

Wireless Internet connection in the whole Establishment is available. Remote access to Internet resources (including electronic library resources and learning materials) is also provided through a safe VPN connection for staff and students.

6.1.6. Description of how the procedures for access to and use of learning resources are taught to students

At the beginning of the first academic year, the FVM organizes a Welcome Day for new students. Among other information, a brief explanation on how to access the Virtual Campus and how to manage the institutional email address is provided. This information is also provided during the Mentoring Program for new students.

Furthermore, the Library offers specific user training, focused on information management: searching, selection, evaluation, ethics and communication. Students are rewarded with 1 elective ECTS after receiving this training. In addition to on-site lessons,

tutorials and learning materials are published on the website.

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

The Library has a close connection with the academic staff of the FVM. Staff is involved in making developmental plans for the Library by means of *ad hoc* consultations, and in selecting material for acquisition on a regular basis through the Library Committee, where students are also represented. This Committee is in charge of implementing, assessing and revising the Library policy.

The acquisition of new resources reflects the demand expressed by both academic staff and students, and includes the recommended bibliography for the different subjects. This literature is available on the website. In addition, veterinary professionals registered in COLVEMA have full access to the Library under agreement.

Regarding the acquisition of new software needed for teaching, the teachers responsible for the subjects contact the computer technicians, who inform the Dean-Delegate for IT. Software is licensed and provided by the UCM.

6.2. Comments

The FVM Library and IT staff are completely integrated with the academic staff, and they are able to give workshops related with Graduation/Master/PhD Thesis. The UCM also provides students and staff with online computer training courses (<http://cursosinformatica.ucm.es/>).

6.3. Suggestions for improvement

Measures for the improvement of learning resources include the continuous enrichment of our collections, the enhancement of user training, and the development of self-e-learning materials.



7. Student admission, progression and welfare



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7. STUDENT ADMISSION, PROGRESSION AND WELFARE

7.1. Factual information

7.1.1. Description of how the educational programme proposed by the Establishment is advertised to prospective students

Annually, the UCM organises the Pre-University Orientation Days for Health Sciences. Baccalaureate students interested in enrolling in our Veterinary Degree attend to this conference, which consists of a first session where they are informed about the admission process in our University, and a second session in which they raise specific doubts that are solved by a representation of the Dean's Office and also by students of the FVM. The UCM also participates in "Aula" (International Educational Opportunities Exhibition), where students receive specific information about the FVM (http://www.ifema.es/aula_06; <https://www.ucm.es/data/cont/docs/titulaciones/79.pdf>).

In addition, the FVM itself organises an Open House Day for last-year high school students who want to get first-hand information about our Degree and the FVM facilities. Moreover, complete information is published in our website (<https://www.ucm.es/estudios/grado-veterinaria>).

7.1.2. Description of the admission procedures for standard students:

-) selection criteria

After finishing the Baccalaureate, students must pass the University Access Exam (PAU), which is the same test for all Public Universities in Madrid. There is no additional specific exam to enter the FVM. Access to Veterinary Degree at the UCM is regulated by a *numerus clausus* system: a certain admission rate is established attending to the number of students to be admitted (165) and the number of students demanding access. The PAU includes two phases: a general phase (which is compulsory for all Baccalaureate students; maximum 10 points) and a specific phase with subjects related to the area of interest (which is voluntary and allows improving the grade up to a maximum of 14 points). Considering the high admission grade needed to access the Veterinary Degree, all students must pass both phases.

The final grade is calculated according to the following formula:

$$\text{Admission grade} = 0.6 \cdot \text{NMB} + 0.4 \cdot \text{CFG} + a \cdot \text{M1} + b \cdot \text{M2}$$

Where NMB = Average grade corresponding to 1st and 2nd years of the Spanish Baccalaureate; CFG = PAU General phase grade; M1, M2 = The two best grades of the subjects of the PAU specific phase; a, b = weighting coefficients of the subjects of the specific phase.

In the case of international students with recognised secondary studies the item $(0.6 \cdot \text{NMB} + 0.4 \cdot \text{CFG})$ is replaced by the average grade of Baccalaureate.

In the academic year 2016/2017, the admission grade was **11.436**.

In addition to standard procedures, there is a percentage of places reserved for students with special situations: 1% for university graduates, 5% for students with a degree of disability equal to or higher than 33%, 3% for high-level and high-performance athletes, 3% for students over 25 years old, 1% for students over 45 years old, and 1% for over 40 year old students with accredited work experience.

-) policy for disable and ill students

Five percent of the admissions are reserved for disable and ill students. They must present an official certificate of disability, proving a rating of 33% or higher. Applications are managed following the same criteria as for the rest of students. During the first academic year, they are not obliged to enrol all Year 1 subjects. Direct and personal attention is given by the University Office for the Integration of People with Disabilities (OIPD).

-) composition and training of the selection committee

There is no specific selection committee for student admission, since it is based on the grade obtained in the University Access Exam.

-) appeal process

Unsuccessful applicants and those that disagree with their grade can present their appeal addressed to the Rector of UCM (<https://www.ucm.es/resultados-y-reclamaciones-selectividad>).

-) advertisement of the criteria and transparency of the procedures

The standard admission procedure depends on the University and is fully advertised and transparent. All the information is published online (<https://www.ucm.es/acceso>). Results of the admission procedure are also communicated online at the same time for all the public universities of Madrid, and personally to all the applicants (<https://www.ucm.es/resultados-y-reclamaciones-selectividad>).

7.1.3. Description of the admission procedures for full fee students

Not applicable.

7.1.4. Description of how the Establishment adapts the number of admitted students to the available educational resources and the biosecurity and welfare requirements

The number of students admitted per year is strictly limited. The total number of admissions is mainly based on the teaching capacity required to achieve a satisfactory standard, based on the available facilities



and staff. The demand for Veterinary graduates in the labour market is also considered. In addition, the number of new-admission students should comply with that established in the official document of the UCM Veterinary Degree approved by ANECA (ENQA member), i.e. **165 admissions**. Each year, the FVM, by means of its Faculty Council, proposes to the UCM Governing Council this specific number of places to be offered, which in turn sends it to the University Coordination Committee of the Ministry of Education, Culture and Sport. This body is empowered to decide, but it usually accepts the Faculty's proposal.

7.1.5. Description of:

-) the progression criteria and procedures for all students

Students have to pass at least one of the course subjects at the end of the first year of enrolment at the University.

On the other hand, there are two ordinary exam sittings per year for each subject. If students fail these two sittings, they can use up to 4 additional exams. The student must have passed a minimum of 70% of ECTS to be enrolled in EPT, Rotations and Graduation Thesis. They cannot present their Graduation Thesis until they have passed all the subjects of the Degree.

-) the remediation and support for students who do not perform adequately

For students who need learning assistance, tutorial sessions are perhaps the best way to offer them direct personalised guidance. The teacher offers orientation and advice on all teaching aspects which may improve the teaching-learning process. All academic staff has a specific tutoring schedule that must be observed (minimum six hours per week).

There are other systems in the UCM to favour the permanency of the students:

- An application for the cancellation of a sitting can be presented to the Dean, accompanied by the appropriate supporting documents or certificates (<https://www.ucm.es/permanencia-en-la-universidad->).
- If a student fails 4 ordinary sittings, he has the right to be evaluated by an Examining Board for the fifth and sixth examinations.
- Students who have failed all six regular examinations of a subject can apply to the Rectorate for an extraordinary exam (7th sitting).

-) the rate and main causes of attrition

The official attrition rate is currently decreasing in our Faculty, i.e. 16.2%, 8.1% and 6.9% in the last three years (average 10.4%). Some students who drop out of Veterinary Degree do so because it did not meet their expectations. The academic results also have influence on attrition since the lower the academic performance and success, the higher the probability of dropping out. Finally, the rise in the tuition fees and the cutbacks in scholarships in Spain increased university attrition rates 4-5 years ago.

7.1.6. Description of the services available for students (i.e. registration, teaching administration, mentoring and tutoring, careers advice, listening and counselling, assistance in case of illness, impairment and disability, clubs and organisations, ..)

The different services available for students in the FVM are coordinated by the Office of the Vice-Dean for Students and International Affairs. This office works closely with the Student Secretary Office, which is responsible for admission, registration, and any other administrative matters, both for undergraduate and postgraduate studies.

Students can convey their needs directly to the Office of the Vice-Dean for Students. Since 2015, an Office for Student Orientation is operating in the FVM, directly attended by the student representatives of our Establishment.

The University Ombudswoman is another important source of orientation for the university community. Collaborative dispute resolution is encouraged whenever possible, and mediation services are available on request through the University Institute for Conflict Mediation and Resolution (IMEDIA).

With regard to mentoring strategies, a formal Mentoring programme driven to new students started as a pilot project in our Establishment in 2012/2013. The Vice-Dean for Students is the coordinator of the programme in our Establishment, and he received specific training for that purpose. Mentors are volunteer students of the FVM that also receive previous training from specialized staff of the UCM Faculty of Psychology, in order to effectively perform their functions. The level of satisfaction with the programme and perceived usefulness by mentors and new students exceeds 4 out of 5 points.

As explained above (Chapter 7, 7.1.5), specific tutoring sessions are offered by all teachers.

Other services available for students are:

- FVM Mobility Office, for guidance and advice for incoming and outgoing students of different national and international exchange programmes.
- UCM Office for Practice and Employment, which aim is to promote the employability of students and graduates of the UCM (<https://www.ucm.es/ope>). A specific Service for Veterinary Students is the Professional Orientation Office attended by COLVEMA in coordination with the FVM. The University periodically publish employability reports through surveys by Graduates (<https://www.ucm.es/data/cont/docs/3-2014-12-04-Veterinaria.%20Conclusiones%202013.pdf>).
- UCM Office for the Integration of People with Disabilities (OIPD).
- UCM Office for Gender and Sexual Diversity and UCM Unit for Gender Equality.
- UCM Programme for high performance athletes in order to help these students to reconcile sport activity and academic studies.



All these UCM Offices have a coordinator in each Faculty, in FVM being the Vice-Dean for Students. Additionally, Veterinary students can use different medical services offered by the UCM, at reduced fees (or free of charge). A health, accident and liability insurance policy is included in the registration fees.

Finally, parallel activities of our students through clubs and associations are prominent. At present, twelve very active associations are established in the FVM. The student associations are located in 7 rooms in Building-B and can use all the facilities of the FVM for their activities (<http://veterinaria.ucm.es/asociaciones>). *Delegación de Estudiantes* is composed of the elected student representatives at the Faculty Council. These students have a relevant role in the different strategies of QA, as explained in Chapter 11.

7.1.7. Prospected number of new students admitted by the Establishment for the next 3 academic years

According to the document approved by ANECA on the Degree in Veterinary, the estimated number of admission places for new students for the next 3 academic years will be similar and never higher than the current one (165) (<https://www.ucm.es/estudios/2015-16/grado-veterinaria>).

7.1.8. Description of how and by who 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

Admission procedures and criteria are common for all the UCM studies and are established by the Ministry of Education, Culture and Sport and the Autonomous Government of Madrid. The number of admitted applicants is based on the official document approved by ANECA on the Degree in Veterinary; it is evaluated and approved by the Faculty Council.

Table 7.1.1. Number of new veterinary students admitted by the Establishment

Type of students	2015/2016	2014/2015	2013/2014	Mean
Granted	49	42	44	45
Standard	111	126	142	126.3
Total	160	168	186	171.3

Table 7.1.2a. Number of veterinary undergraduate students registered at the Establishment (new syllabus)

	2015/2016	2014/2015	2013/2014	Mean
1st year	179	178	192	183
2nd year	203	230	250	227.7
3rd year	228	236	207	223.7
4th year	229	158	95	160.7
5th year	192	109	0	100.3
Total	1,031	911	744	895.3

Table 7.1.2b. Number of veterinary undergraduate students registered at the Establishment (old syllabus, in extinction). The students only have the right to be evaluated

	2015/2016	2014/2015	2013/2014	Mean
1st year	0	1	0	0.3
2nd year	0	0	11	3.7
3rd year	0	5	7	4
4th year	10	27	29	22
5th year	88	206	416	236.7
Total	98	239	463	266.7

Table 7.1.3a. Number of veterinary students graduating annually (new syllabus)

Type of students	2015/2016	2014/2015	2013/2014	Mean
Granted	10	8	-	9
Standard	63	30	-	45.6
Total	73	38	-	55.5

Table 7.1.3b. Number of veterinary students graduating annually (old syllabus, only evaluation)

Type of students	2015/2016	2014/2015	2013/2014	Mean
Granted	0	9	28	12.3
Standard	45	122	170	112.3
Total	45	131	198	124.7

Table 7.1.4a. Average duration of veterinary studies (new syllabus)

Duration	% of the students who graduated on 2015/2016
5 + 0	47%
5 + 1	53%
5 + 2	0
5 + 3 or more	0

Table 7.1.4b. Average duration of veterinary studies (old syllabus, only evaluation)

Duration	% of the students who graduated on 2015/2016
5 + 0	0
5 + 1	0
5 + 2	33.3%
5 + 3 or more	66.7%

Table 7.1.5. Number of postgraduate students registered at the Establishment

	2015/2016	2014/2015	2013/2014	Mean
Interns	22	17	17	18.7
Residents	2	2	0	1.3
PhD Programmes	248	250	230	242.7
PhD Programme in Veterinary Science	225	227	209	220.3
PhD Programme in Biochemistry, Molecular Biology and Biomedicine	18	15	12	15
Other PhD Programmes*	5	8	9	7.3
Official Master's Degrees	50	42	51	47.7
MSc in Research in Veterinary Science	3	2	18	7.7
MSc in Research in Virology	25	28	25	26
MSc in Animal Health and Production	22	12	8	14
Total	298	292	281	290.3

*Old PhD programmes

7.2. Comments

The number of admitted students is analysed every year and is based on the maintenance of hands-on training and teaching quality at the FVM. Our current syllabus is new, and conclusions regarding the progress of students probably need more time for a proper data evaluation. Nevertheless, preliminary results show a rational average time to complete the Degree, similar to the data of the Spanish Conference of Veterinary Faculties (national average of 6.8 years). Studies in our Establishment are demanding, but the learning environment is friendly, our students are highly-motivated and they also have a good and sound academic background, which influences the low attrition rate.

7.3. Suggestions for improvement

The admission of students from an Establishment other than FVM is legally possible. Our Faculty has largely reduced the number of such admissions, but a change in the current regulations would be needed.

A rational approach of veterinary education in relation to the requirements of veterinary profession and society in general is also needed. A control system of the student admission in all the Spanish Veterinary Faculties based on a critical analysis would be desirable.



8. Student assessment



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8. STUDENT ASSESSMENT

8.1. Factual information

8.1.1. Description of the global student's assessment strategy of the Establishment

The global student assessment is considered an integral part of the learning process. It is decided by the same boards involved in teaching planning and it is annually approved by the Faculty Council (see Chapter 3, 3.1). In fact, the time required for assessment is expressed as ECTS and included in the syllabus.

Most subjects combine continuing assessment of the student's day-to-day activity with the evaluation of supervised works, written exams for the evaluation of theoretical knowledge, and specific exams for the evaluation of practical skills. Many subjects also include mid-term tests. Teachers certify that students who pass the subjects have acquired the knowledge, competences and skills directly related to them.

8.1.2. Description of the specific methodologies for assessing:

-) theoretical knowledge

Assessment of theoretical knowledge is mainly based on written exams. Specific methodologies depend on each subject, but multiple choice test, essays, and matching type tests are the most commonly used. Theoretical knowledge is also evaluated through continuing assessment and evaluation of supervised works.

-) pre-clinical practical skills

Pre-clinical practical skills are primarily evaluated through continuing assessment, written reports, and supervised work evaluation, and oral presentations and exams. Practical exams are sometimes made on healthy animals, organs, cadavers, patients, or in the laboratory, depending on the subject. A positive evaluation of practical skills is required to pass the subjects.

-) clinical practical skills

Assessment of clinical practical skills is fully explained in Chapter 3 (3.1.9).

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

As explained in Chapter 3 (3.1.9), we have adopted a document of compliance of the curriculum with the Day One Competences approach, in order to ensure that all graduates achieve the required level of competence at the end of the studies (Appendix 2.b). Besides, each student uses a personal logbook in Rotations in order to certify the acquisition of the specific skills included in the ESEVT Day One Competences.

8.1.4. Description of the processes for:

-) ensuring the advertising and transparency of the assessment criteria/procedures

The assessment process is officially regulated in the UCM Student Statutes ([https://www.ucm.es/data/cont/media/www/pag-37665/Estatuto%20del%20Estudiante%20\(UCM\).pdf](https://www.ucm.es/data/cont/media/www/pag-37665/Estatuto%20del%20Estudiante%20(UCM).pdf)).

The assessment criteria/procedures are published in the subject description guides before the academic year starts. Moreover, the following information must be included in the examination official announcements: date, time, type of examination, duration, evaluation criteria, and date of publication of results, which should be communicated at most 30 calendar days after examination. Students can review their exams after the publication of results.

-) awarding grades, including explicit requirements for barrier assessments

The process of awarding grades is also officially regulated in our University (<http://pendientedemigracion.ucm.es/bouc/pdf/1044.pdf>).

Grades must be expressed as numbers, to which their corresponding qualitative grading is added: (Failing Grade: 0-4.9, Passing Grade: 5-6.9; Grade B: 7-8.9; Distinction: 9-10). The cut-off score is 5. Likewise, the mention "Matrícula de Honor" (Excellent) can be awarded to those students that have obtained a grade equal to or higher than 9.0, with the restriction numbers derived from national regulations (number cannot exceed 5% of students enrolled in a subject, unless the number of students registered is less than 20).

-) providing to students a feedback post-assessment and a guidance for requested improvement

The examination review is an essential part of the learning process and the starting point for feedback post-assessment. The improvement process is based on a follow-up of the student progress through a system of individualised tutorials by teachers that is considered the best method to carry out a correct guidance of the student.

-) appealing

In case of disagreement with the result of the review, the students can refute their grades before the Department Councils, and ultimately before the Rector. The specific procedure is fully described in the UCM Student Statutes (<http://www.ucm.es/estatuto-del-estudiante-ucm/>).

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

The evaluation procedures of the subjects are proposed by the Department Councils, discussed in the coordination meetings and subsequently approved by the Faculty Council. With regard to the examination

calendar, the draft is elaborated by a representative of the Committee for Assessment and Improvement of the Curriculum, together with academic staff and student representatives. After approval, all the information is published on the website, and on the Virtual Campus, at least 2 months before the academic year starts. This procedure complies with the official document of the Degree in Veterinary approved by ANECA and the QA system of the FVM.

8.2. Comments

The FVM is encouraging students to participate more actively in the tutoring system, as an essential part of the learning process. Nowadays, online tutoring is more frequently used than on-site tutorials.

The participation of external evaluators of EPT is appreciated by internal and external stakeholders.

8.2. Suggestions for improvement

The FVM is currently involved in an Innovative Project, “Workshop on Evaluation of Competences and Learning Results by Rubric” funded by the University and with the technical support of the Faculty of Education. The goal is to find new methodologies for competence evaluation, especially technical skills.



9.

Academic and support staff



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9. ACADEMIC AND SUPPORT STAFF

9.1. Factual information

9.1.1. Description of the 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

Competences are linked to the subjects that make up the curriculum. All teachers involved in the different subjects must be accredited by ANECA (or regional agencies) in the corresponding subject areas, including training and research activities. In each subject of the programme, the lessons are assigned to the teachers that are specialized in the different topics. Each academic year, the QA System reviews the subject description guides and elaborates an annual report, as explained in Chapter 11.

The UCM evaluates the activity of its teachers through the **DOCENTIA** programme (<https://www.ucm.es/programadocentia>), developed by ANECA and managed in the UCM by the Vice-Rectorate for QA. All the academic staff of the FVM obtained a positive evaluation in the DOCENTIA-UCM programme in the last academic year. The teachers that achieve at least 95 points over 100 in this programme receive the “**Excellence teaching mention**”. In 2015, 15 of our teachers obtained that mention (approximately 7% of the total number of awarded teachers in the UCM).

To be promoted to a new position, University teachers must be accredited and, afterwards, get through a competitive examination. The research activity of the staff is also externally evaluated by the National QA Agency for Research by 6-year periods. The total number of positive 6-year period evaluations in the FVM is 523, with a mean of 2.7 positive evaluations per permanent teacher.

The number of European Board of Veterinary Specialisation (EBVS) Diplomates among FVM teachers has doubled since the last EAEVE evaluation. Also since the last visit, 3 European residency programmes have been established at the FVM. A significant number of our teachers are members of different National Expert Committees and Agencies, i.e. AEMPS, AECOSAN, R&D&I Secretariat of State, etc.

Specific training in biosecurity for support and teaching staff depends on the Unit for Management and Coordination of Prevention of Labour Risks (<https://www.ucm.es/formacion>). Specific courses about general labour risks, and those associated to laboratory/animal facilities or use of gases in laboratories are periodically given.

Concerning teaching and research training, our teachers can attend courses on the use of different bibliographic tools and online teaching tools, such as the management and applications of the Virtual Campus (development of teaching material for students, evaluation, subject management, etc.). In the past years, the UCM offered

pedagogical and IT training through the *Instituto de Ciencias de la Educación* (ICE). Recently, the UCM Permanent Training Service is implementing a new plan, including English teaching for the internationalisation of the UCM programmes.

On the other hand, the UCM programme “Innovation and Improvement of Teaching Quality projects” offers our teachers the possibility to apply for funding for new initiatives to improve and set up innovative teaching techniques, and to increase the quality of our programmes at different levels. In the last three academic years, the Dean’s Office has developed 3 innovative projects, while the academic staff has conducted other 32 projects and has participated in different teaching innovation strategies.

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

Each academic year, the Departments present to the Faculty Council the position requests to increase and/or replace their staff. The Council evaluates the requests and, if approved, they are submitted to the Rectorate, which evaluates them attending to the UCM staff annual action plan (see 9.1.8) and funding availability.

In the case of permanent positions, a competitive examination is called, to which the candidates must previously have the required accreditation, in which teaching, research and management activities are evaluated. In these examinations, the evaluation is carried out by an examining board composed of teachers belonging to the specific subject area. For temporary hired positions, the selection and recruitment is performed through contracting committees of the subject area, which evaluate the record of the candidates.

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

The selection and recruitment of support staff directly depends on the UCM Rectorate, which decides its number depending on the estimations from the UCM Staff Report. For civil servant support personnel, the University calls open access competitive examinations. These examinations are called for the different categories/levels of responsibility. The University can also hire both permanent and temporary staff.

The VTH can propose to contract clinical, technical and administration staff from its own budget. The contracting system follows the same regulations and procedures as the rest of the general competitive processes at the UCM.

Programmes for continuing training of our academic and support staff have been successfully implemented, through courses dealing with quality culture, definition



and assessment of competences, assessment of learning results, academic management, and use of ITs in virtual teaching procedures and coordination (<http://www.ucm.es/movilidad-stt>; <http://cursosinformatica.ucm.es/>; <https://www.ucm.es/pid/formacion>; <https://www.ucm.es/csim/cursos-especiales-pdi>; <https://www.ucm.es/unidad-de-formacion-pas>).

Our teachers also develop numerous innovative education projects (<https://veterinaria.ucm.es/veterinaria-es-calidad>).

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

The teaching and research merits of the permanent academic staff are evaluated every 5 years by the UCM and every 6 years by the National QA Agency for Research. If the result is positive, it is reflected in the teacher's salary.

The hired non-permanent academic staff has the possibility to accede to a permanent position through an examination process (public, open access, and with the participation of an examining board), once they have obtained the accreditation by ANECA or the QA regional agencies for those permanent positions. Equally, the permanent staff can be promoted to an upper level in the teaching career through the same type of examinations, once they are accredited by ANECA. Since 2011, this process for stabilisation and promotion of the UCM teaching staff has been limited, due to restrictions in public funding. The programme was reactivated in 2016.

The results of the DOCENTIA-UCM evaluation are also taken into account for a limited annual wage supplement in the teacher's salary given by the regional authorities.

There are also programmes for the promotion and relocation of the UCM support staff, mainly by means of free examinations to accede to a superior category or to move to another service within the same category.

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

Full-time teachers cannot generally undertake outside work, except in official public institutions, and always with the authorisation of the University. Part-time teachers are allowed to do outside work, and, in the case of Associate Teachers, outside work is mandatory to get this position.

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

Surveys conducted by the students are essential elements for the assessment of the academic staff at a central level, as part of the above mentioned DOCENTIA-UCM programme, and also of the programme for the

assessment of satisfaction with the Degree, run by the Vice-Rectorate for QA, as well as for the QA System of the FVM.

Additionally, our Faculty performs a programme for monitoring the teaching activity, which includes meetings with teachers and students to evaluate different aspects of the theoretical and practical teaching, as shown in Chapter 3 (3.1.3) and Chapter 11 (11.1.1).

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

Our student-to-teacher and student-to-support staff ratios can be considered as adequate. Nevertheless, these ratios should be improved to some extent, mainly in relation to practical teaching in small groups, which requires a greater number of academic staff in comparison with other teaching activities. However, considering the current recruitment and replacement policies of the UCM, and the progressive ageing of our staff, it is expected that the number of FTE academic and support personnel of our Faculty will not be significantly increased by the University in the next 3 academic years. A Plan of Actions for Academic Staff, with prospected new hiring, has recently been presented to the UCM community by the Vice-Rector for Academic Affairs, to be implemented during 2017.

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

The UCM Rectorate draws an annual plan of actions for the recruitment, stabilisation and promotion of staff. The UCM establishes the personnel needs based on the number of students, subject credits and the type of teaching and support activities corresponding to each Department, and it serves as a general guidance for the action plan, which is approved by the UCM Council.

Every year, the staff needs are determined by the Departments, which present to the Faculty Council the position requests. The Council evaluates them and, if approved, they are submitted to the Rectorate. Finally, the University approves or rejects the proposals attending to the above mentioned criteria.

As mentioned in 9.1.3, the VTH can propose hiring clinical, technical and administration staff from its own budget. Also, the directors of the research projects can hire research staff from their budgets (<http://www.ucm.es/personal-de-apoyo-a-la-investigacion-pai>).

At the FVM level, the assessment of the staff activity is conducted and approved yearly by the Faculty Council through reports of the Dean's Office, the Vice-Deans for Academic Organisation and Quality, the FVM QA System, and the FVM Staff Management Service. At the UCM level, the assessment of the staff is carried out by the



Vice-Rectorate for Quality and the Vice-Rectorate for Academic Affairs.

Maximum transparency and dissemination are guaranteed in all of these procedures.

Table 9.1.1. Academic staff of the veterinary programme (FTE)

Type of contract	2015/2016	2014/2015	2013/2014	Mean
Permanent				
Full Professors*	32	33	33	32.7
Associate Professors**	160	163	162	161.7
Total Permanent Professors	192	196	195	194.3
Temporary				
Assistant Teachers***	20	20	21	20.3
Associate Teachers****	23	22.3	19.1	21.5
Professor Emeritus*****	2	2.5	3	2.5
Total Temporary Teachers	45	44.8	43.1	44.3
Total	237	240.8	238.1	238.6

*Full Professor (Catedrático de Universidad): full-time, civil servant, tenured position

**This item includes tenured positions, both civil servant and hired Associate Professors (Titular de Universidad and Contratado Doctor)

***Assistant Teachers (Ayudante Doctor, Titular Interino, Colaborador): full-time, temporary, hired position

**** Associate Teacher (Asociado): part-time (variable dedication), temporary, hired position

*****Professor Emeritus (Profesor Emérito): retired UCM tenured teachers with distinguished services, part-time, temporary, hired position

Table 9.1.2. Percentage (%) of veterinarians in academic staff

Type of contract	2015/2016	2014/2015	2013/2014	Mean
Permanent	83.3	83.7	84.1	83.7
Temporary	70.4	70.3	73.3	70.3
Total	80.9	81.6	82.1	81.5

Table 9.1.3. Support staff of the veterinary programme (FTE)

Type of contract	2015/2016	2014/2015	2013/2014	Mean
Permanent				
Civil service	40	41	42	41
Permanent hired	65	69	71	68.3
Temporary*	32.9	33.5	32.8	33
Total	137.9	143.5	145.8	142.3

*Research support staff is not included in this table

Table 9.1.4. Research staff of the FVM (total number)*

Type of contract	2015/2016	2014/2015	2013/2014	Mean
Permanent**	-	-	-	-
Temporary***				
Predoctoral	46	44	52	47.3
Postdoctoral	2	1	5	2.7
Staff associated to Research Project/Group	67	53	56	58.7
Total	115	98	113	108.7

*Predoctoral and post-doctoral researchers are full-time staff. Staff associated to Research Projects can work part-time or full-time, and their dedication can change during the year

**The permanent academic staff of the FVM also conducts research activities

***The hired academic staff is not included in this table, although they also conduct research activities

9.2. Comments

Due to the recent economic crisis, the Government decided to stop recruitment in the public sector, including Universities. As a result, new academic and support staff has not been generally hired, even after retirements or deaths. Some temporary staff is accredited to upper positions, but they are not offered due to economic constraints.

Even in this situation, the FVM counts with a highly qualified, motivated and experienced staff, and with an adequate student-to-teacher ratio. The high percentage of veterinarians on the teaching staff (11% higher than in the last EAEVE evaluation) and the fact that all the Departments involved in the Veterinary Degree are located in the FVM, is a good evidence that teaching is clearly oriented to Veterinary Science.

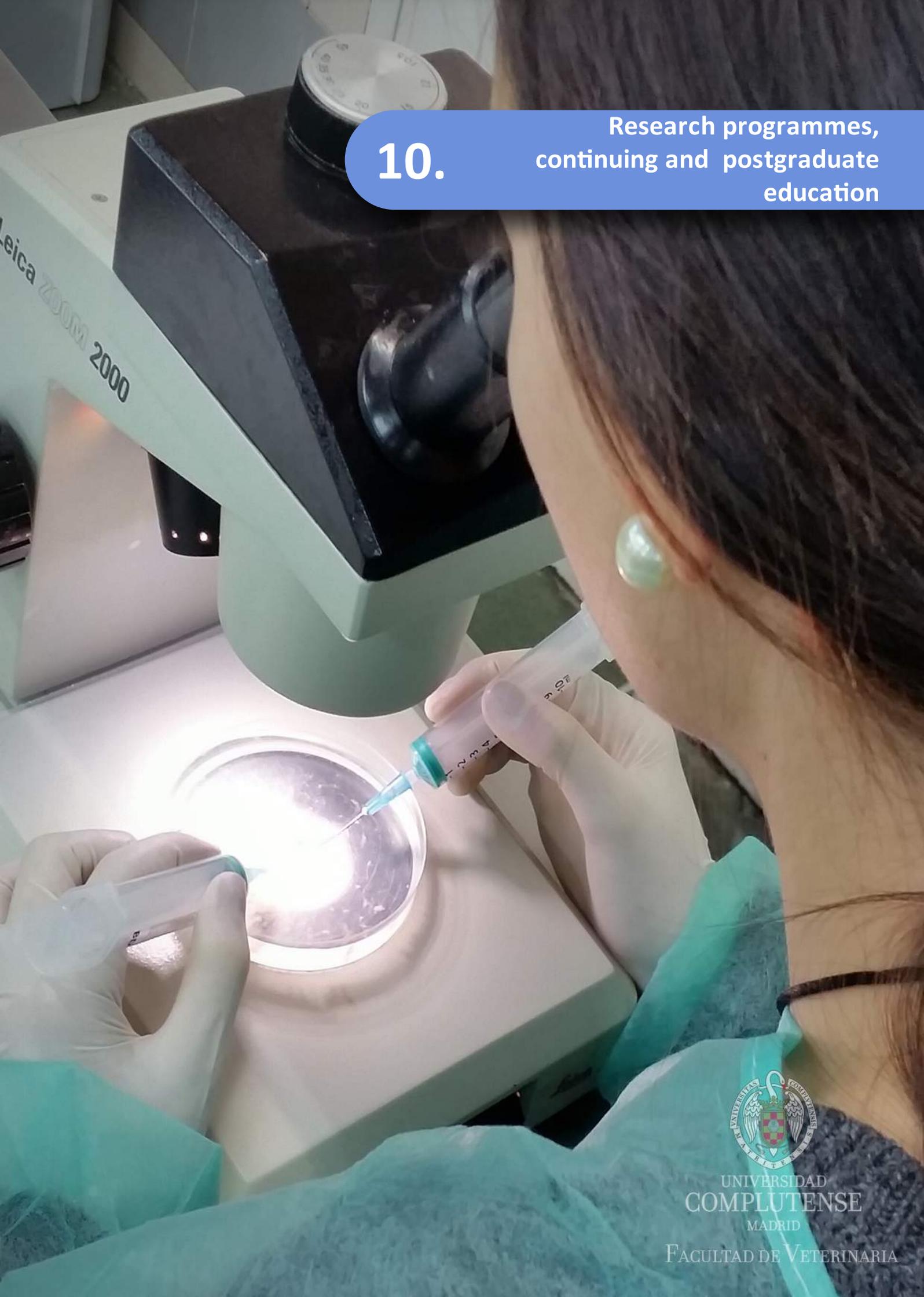
The increasing number of teachers that have obtained the Excellence teaching mention in the DOCENTIA-UCM assessment programme, and its significant percentage in relation to other UCM Faculties are also remarkable.

9.3. Suggestions for improvement

Although our teachers are highly motivated and experienced, their average age (53 years-old) has increased, and a programme for new recruitment and replacement should be implemented in a short/medium term. It would be desirable to increase the participation of the FVM, VTH and Departments in the recruitment of both academic and support staff, to better match the number and the profiles required, which does not always coincide with the estimations of the UCM Rectorate.

The number of EBVS Diplomates and residency programmes at the FVM has significantly increased since the last EAEVE evaluation, but it would be desirable to implement plans to promote and reinforce these programmes in the next years.

The training programmes for academic and support staff also need to be strengthened both at a central level (UCM-Rectorate) and, specifically, in the FVM.



10. Research programmes,
continuing and postgraduate
education





10. RESEARCH PROGRAMMES, CONTINUING AND POSTGRADUATE EDUCATION

10.1. Factual information

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

Involving and introducing undergraduate students in scientific research is a traditional part of our teaching strategy. During their undergraduate years, each student actively participates in research activities through different programmes:

- Collaboration scholarships. The Ministry of Education, Science and Sport invites applications each year. The aim is to enable final year students to collaborate in the Departments, so they initiate research directly linked to the studies they are taking. During the last three full academic years, an average of 5 collaboration scholarships/year was awarded to the FVM.
- EPT. Some students (11 during the last 3 courses) choose to carry out EPT in research centres or institutes out of the FVM, such as INIA, Animal Health Research Centre (CISA), CSIC, National Oncological Research Centre (CNIO), etc.
- Research recognized as elective ECTS for collaboration in research. In the last two academic years, an average of 34 students/year collaborated in our Departments taking part in research work.
- Graduation Thesis. It includes an experimental research part, either a laboratory experiment, a clinical study, an analytical activity, or a critical review. Students must work independently under the supervision of a teacher on a scientific project, concluding with a thesis presented at a public defence in front of an advisory examining board. The marks obtained are part of the final grade of the Diploma.

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

The current number of Specialists and Diplomates of the European Colleges among our academic staff is 24, and the number of teachers accredited by the Spanish Small Animal Veterinarians Association (AVEPA) is 26 (Annex 10.1.2). In 2016, the VTH offered 22 internships for Veterinary graduates: 16 places in the area of Small Animals and 6 places in the area of Large Animals. Interns collaborate in the practical training of undergraduate students in different subjects, including the 5th year subject Clinical Rotation. The presence of Diplomates in the FVM staff stimulates and challenges our undergraduate and postgraduate students. Clinical training of Diplomates and interns do not generate conflicts, but strongly contribute to expand the

knowledge of our students.

10.1.3. Description of how undergraduate students:

-) are made aware of the importance of evidence-based medicine, scientific research and lifelong learning

The main channels by which this information is provided to undergraduates are:

a) Direct information by the teacher. The expertise of teachers is considered when distributing the contents of the syllabus, so they can communicate their knowledge to the students in both lectures and practical classes, and also motivate them to develop a scientific approach to learning.

b) Scientific events. Every year, the FVM organises an open session to introduce undergraduate and early postgraduate students in the scientific career, and to present our postgraduate programmes. Besides, every fifteen days, open PhD seminars given by our students are publically presented, to which undergraduates are welcome.

In relation to the participation in scientific congresses, in 2001 the FVM launched the *First Veterinary and Biomedical Sciences Congress for Undergraduate Students*. Since then, and based on the success of this initiative, the congress has been held annually, and it has become the *National Congress on Undergraduate Research in Health Sciences*. In this congress, the students present research work carried out under the supervision of their teachers. The participation of the students has been outstanding and continuously increasing since its creation. As an example, in the 2016 edition, out of a total of 301 oral communications, 50% were authored by FVM students. Details on the relevant participation of our students in the last three editions are given in Annex 10.1.3.

Besides 10-minute oral or poster presentations, the students have the opportunity to prepare a 5-page paper (comparable to a short-note manuscript for an international peer-reviewed journal) which is evaluated prior the conference by the Scientific Committee (comprising professors from different Faculties of the UCM). The manuscripts are offered to be published in the *Complutense Journal of Veterinary Sciences*, and the best ones are awarded with a prize.

Since 2015, the FVM also organizes VETINDOC, a one-day meeting addressed to PhD students and open to undergraduates.

c) Out-research activities. Once a year, the FVM actively participates in out-research events such as the *Science Week* and the *Night of the Researchers*. As an example, in the last five editions, an average of thirteen workshops has been offered to society per year.

d) Graduation Thesis. As explained in 10.1.1, the Degree concludes with the presentation of a dissertation that includes an experimental research part.



It is important to remark that since 2014, the Degree in Veterinary is recognised as level 3 (Master) in MECES. This level includes all the qualifications that are aimed to the acquisition of an advanced training oriented to specialisation or to promote the introduction into research activities.

-) are initiated to bibliographic search, scientific methods and research techniques, and writing of scientific papers

At the beginning of the academic year, in the *Welcome Day* for the new students, our Library staff provides specific information on the bibliographic resources and activities of the Library of the FVM. Monthly, courses at different levels are offered to all the students (undergraduate and postgraduate) on bibliographic search and management, databases and scientific writing. This training is included in the syllabus of the student, with the recognition as elective credits (1 ECTS) and is finally confirmed with the Graduation Thesis, as previously explained.

-) are offered to participate to research programmes on a non-compulsory basis

As mentioned above, the FVM allows its students to participate actively in the research activities of our groups and Departments through several ways: collaboration scholarships (which are very competitive), internships and different out-research activities that have been previously described. These possibilities are disseminated in the classroom or the laboratory, public advertisement, informative displays, social networking, and open sessions.

10.1.4. Description of how the continuing education programmes provided by the Establishment are matched to the needs of the profession and the community

The FVM has a close relationship with COLVEMA. This relationship is formalised with the existence of the official "Extraordinary Chair COLVEMA-UCM". Through this link, many continuing education initiatives are proposed and developed by our professors, in collaboration with the Professional College. Through active collaboration with COLVEMA, our Centre specifically participates in the Professional Master course in Food Safety, which is organised by this professional association. In 2016/2017, the FVM will be holding the 13th edition of this Master, course with a great demand by professionals.

On the other hand, all the official Master's programmes imparted at the FVM have an academic orientation, together with a professional profile. In particular, the Master's Programme in Swine Health and Production (managed by the University of Lleida) offers the students the possibility of incorporation to the professional activity in a field in which Spain holds a strong position in the European livestock sector.

Finally, links between university and society in terms of continuing education are also established through active

collaborations, including Extraordinary Chairs with different companies, such as Hill's Pet Nutrition and Zoetis, and professional associations.

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

The FVM will promote its postgraduate programmes through the development of a new official Master's Degree in Food Science and Technology, as well as a training course for veterinary assistants, together with other proposals that will be agreed with the professional sector. Therefore, the prospected number of postgraduate students is expected to increase due to the offer of new courses, as well as the enhancement of the existing ones, according to the following estimations: Y+1 (10%), Y+2 (15%), Y+3 (30%).

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

There are three committees involved in the coordination of research, and continuing and postgraduate education programmes at the FVM, with a fluent crosstalk among them:

- Research Committee. It evaluates the activities of the validated research groups every two years. Every year it also evaluates the quality of the research projects that have been presented to UCM calls, and the applications for PhD fellowships.
- Postgraduate Committee. It offers the research lines of the FVM groups to students interested in carrying out postgraduate studies (Master's Degrees, PhD programmes, etc.). It also evaluates the proposals of postgraduate courses made by teachers, researchers and/or FVM groups.
- Academic Committees of the PhD programmes. They evaluate the research plan and the activities of their PhD students, and carry out an integral follow-up of the performance of the student during their whole PhD training.

Besides, each PhD and Master's Degree has a Quality Committee that every year revises the progress and results of the titles. These Committees are also part of the FVM QA System and report to the Vice-Rectorate for QA of the UCM. Periodically, regional and national Quality Agencies evaluate our official postgraduate programmes.

Our **research strategy** is based on UCM-validated groups, of which the FVM has 37 research groups that are integrated by multidisciplinary members. The activity of the FVM can be framed in 7 areas of Veterinary Sciences, which integrate the research strategy of our Establishment:

- 1) Research on Microbiology, Parasitology, Immunology and Animal Health.
- 2) Research on Animal Medicine and Surgery.
- 3) Research on Food Technology, Safety and Hygiene.



- 4) Research on Animal Production, Nutrition, and Genetics.
- 5) Research on Toxicology and Pharmacology.
- 6) Research on Animal Physiology, Endocrinology and Nervous System.
- 7) Research on Biochemistry, Molecular Biology and Biomedicine.

A key milestone of the success of the research and technology transfer developed at the FVM has been the creation of **four spin-offs** (NATURALBIOTEC, PROBISEARCH, VELOGEN, and SALUVET-INNOVA) oriented to meet the social and professional demands in different areas of the Veterinary Sciences. These companies offer highly qualified job opportunities for both Veterinary graduates and postgraduates.

All the information about research at the FVM is available on our website (<http://veterinaria.ucm.es/investigacion-1>).

The **FVM postgraduate training offer** includes two PhD programmes (Veterinary Science, and Biochemistry,

Molecular Biology and Biomedicine), four Official Master's Degrees (Master's Degree in Virology, Master's Degree in Production and Animal Health, Master's Degree in Research in Veterinary Science and Master's Degree in Swine Health and Production), different Permanent Education programmes (UCM postgraduate courses and continuing education courses) and postgraduate clinical training programmes. Our offer is based on our research strategy, and on the collaboration with professional associations (COLVEMA, AVEPA, National Association of Spanish Specialists in Bovine Medicine-ANEMBE, Spanish Association of Municipal Veterinarians-AVEM, etc.), companies and Public Health, Food and Agriculture Departments. In collaboration with these entities, the FVM also organises numerous specialised one-day sessions and workshops on different topics of the Veterinary professional activity, which are open to undergraduate and postgraduate students. All the information about the FVM postgraduate training programmes is available on our website (<http://veterinaria.ucm.es/estudiar>).

Table 10.1.1. Number of students registered at postgraduate clinical training

	Clinical discipline	General Interns			Speciality Interns			Diploma*
		2016	2015	2014	2016	2015	2014	2016
Companion animals	Small Animal Area	4	6**	6**	-	6**	6**	-
	Small Animal Medicine	-	-	-	2	-	-	-
	Small Animal Surgery	-	-	-	2	-	-	-
	Small Animal Hospitalisation, IC and ER	-	-	-	4	-	-	-
Large animals	Large Animal Area	5	3	3	2	3	2	-
All species	Anaesthesia	-	-	-	2	-	-	1
	Diagnostic Imaging	-	-	-	1	-	-	-
	Pathology	-	-	-	-	-	-	1

*Diploma/title anticipated. European Residence programmes started in 2016 at FVM (EBVS certified)

**In 2014 and 2015 interns were not assigned to a specific area, but they rotated through different services; for this reason, in this table all of them have been included in the small animal area

Table 10.1.2. Number of students registered at postgraduate research training Degrees

	2015/2016	2014/2015	2013/2014	Mean
PhD Programmes	248	250	230	243
PhD Programme in Veterinary Science	225	227	209	220
PhD Programme in Biochemistry, Molecular Biology and Biomedicine	18	15	12	15
Other PhD Programmes*	5	8	9	7
Official Master's Degrees	50	42	51	48
MSc in Research in Veterinary Science	3	2	18	8
MSc in Research in Virology	25	28	25	26
MSc in Production and Animal Health	22	12	8	14
MSc in Swine Health and Production**	-	-	-	25-35
Total	298	292	281	291

*Students enrolled in old PhD Programmes that will become discontinued by 2017 due to changes in national education regulations

** Students enrol at the University of Lleida



Table 10.1.3. Number of students registered at other postgraduate programmes

Programme	2015/2016	2014/2015	2013/2014	Mean
Anesthesia and Analgesia in Small Animals (UCM Specialist Course)	18	*	*	18
Equine Hospital Clinic (UCM Master's Course)	2	4	1	2.3
Equine Physiotherapy and Rehabilitation (UCM Expert Course)	*	*	7	7
Exotic and Wild Animals: Management, Clinical Practice and Captivity Breeding (UCM Specialist Course)	18	12	23	17.7
Fundamentals of Animal Physiotherapy and Rehabilitation (UCM Expert Course)	10	12	16	12.7
Honey Bee Health and Production (UCM Specialist Course)	13	*	*	13
Internship in Small Animal Medicine and Surgery (UCM Specialist Course)	4	6	6	5.3
Internship in Equine Medicine and Surgery (UCM Specialist Course)	4	2	4	3.3
Small Animal Hospital Clinic (UCM Master's Course)	6	6	6	6
Small Animal Physiotherapy and Rehabilitation (UCM Expert Course)	11	*	*	11
Traumatology and Orthopaedic Surgery in Companion Animals (UCM Specialist Course)	16	14	14	14.7
Total	102	56	77	78.3

*Not offered or imparted in the academic year of reference. Courses are offered annually or every two years

UCM Master's Courses: minimum 500 hours; UCM Specialist Courses: minimum 300 hours; UCM Expert Courses: minimum 250 hours

Table 10.1.4. Number of attendees to continuing education courses

Course	2015/2016	2014/2015	2013/2014	Mean
Advanced Course on Mechanical Ventilation in Small Animals	16	*	*	16
Animal-Assisted Therapy	*	16	28	22
Auxiliary Technician in Zoos and Aquariums	44	45	47	45.3
Basic Course on Mechanical Ventilation in Small Animals	16	*	*	16
Canine Instructor and Behaviour Therapist	15	17	25	19
Cytological Interpretation in Small Animals	9	9	9	9
Equine Podiatry and Horseshoeing	31	20	*	25.5
Laboratory Animal Handling. Category B	*	20	67	43.5
Practical Course on Ultrasound-Guided Infiltration in Horses	*	12	*	12
Reproduction Biotechnologies Applied to Veterinary Sciences	*	7	11	9
Small Animal Cardiology	22	*	21	21.5
Specialisation in Management of Exotic Herpetofauna in Zoological Centres and Cores	12	25	14	17
Technician in Centres for Recovery, Reproduction and Reintroduction of Wildlife	16	16	16	16
Techniques of Fracture Reduction in Small Animals	22	22	*	22
Veterinary Ophthalmology	*	20	*	20
Total	203	229	238	223.3

*Not offered or imparted in the academic year of reference. Courses are offered annually or every two years

Table 10.1.5. List of the major funded research programmes in the Establishment which were on-going during the last full academic year prior the Visitation (2016)

Research programmes	Scientific topic	Number of projects	Grant/year (€)	Duration
European Commission	Animal Health	2	1,214,994.00	2013/2018 (5 years)
	Food Science	1	166,336.20	2015/2016 (1 year)
NIH	Animal Health	1	203,919.00	2015/2019 (5 years)
Subtotal			1,585,249.20	
Spanish National Science Ministry (MINECO)	Animal Health	15	1,640,129.56	Average of 3 years each
	Food Science	6	910,477.20	
	Animal Production	4	435,379.89	
	Physiology	1	48,400.00	
	Biochemistry and Molecular Biology (Biomedicine)	6	1,320,000.00	
	Toxicology and Pharmacology	1	32,670.00	
Subtotal			4,387,056.65	
Regional Programmes	Animal Health	7	324,814.85	Average of 4 years each
	Food Science	1	15,146.33	
	Animal Production	3	95,431.54	
	Physiology	1	37,489.24	
	Biochemistry and Molecular Biology (Biomedicine)	2	105,889.96	
	Toxicology and Pharmacology	1	21,850.00	
Subtotal			600,621.92	
Transfer Technologies to Innovative enterprises	Multidisciplinary	119	3,724,969.45	
Collaborative Projects (University-Enterprises)	Multidisciplinary	3	600,853.00	
Total			10,898,750.22	

10.2. Comments

The FVM considers its research activity in general, and its undergraduate research programmes in particular, as one of its strengths. All undergraduates are encouraged by teachers to join research activities in different programmes during their whole training period. This builds a strong network integrated by undergraduates, PhD and Master's students, research groups, teachers, etc. As a result, a significant number of our graduates continue to our postgraduate programmes, and many of them conclude a doctoral thesis. In the last three years, an average of 30 FVM graduates applied for admission in our PhD Programme in Veterinary Sciences.

As quality indicators of the research activity of the FVM, 700 scientific papers were published between 2013 and 2015 in JCR indexed journals. In the last five years, 1,521 documents have been published by our research groups, with an h-index of 32. The 200 most cited articles account for 36,648 citations, among them 15,397 corresponding to the last five years. This activity allows us to succeed in the application to different competitive calls of projects and predoctoral grants, with an average in the last three years of 41 students/year receiving financial support to conduct their PhD training.

10.3. Suggestions for improvement

Food Technology, Hygiene and Inspection are essential parts of the Veterinary activity related to public health. A future Official Master's Degree in Food Science is being developed by the FVM, to offer our graduates the possibility to acquire competences and abilities in all the aspects related to food technology, quality, safety and management of food processing facilities.

There are also plans to promote the FVM continuing training offer, adapting it to the new requirements of both, profession and society. A survey is being conducted in collaboration with the professional college and associations to establish the priority areas. Among these courses, a programme for training Veterinary Assistants will be implemented.

Although the number of Diplomates of the EBVS has significantly increased since the last EAEVE Visitation, and three residency programmes are currently running, it would be desirable to set up new programmes. There are plans to implement in a near future a programme in Veterinary Emergency and Critical Care, and another one in Equine Surgery, as well as to enhance new proposals in other specialisations.



11.

Outcome Assessment and Quality Assurance

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4 Y 5 DE FEBRERO DE 2014
FACULTAD DE VETERINARIA
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Patrocinadores:
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11. OUTCOME ASSESSMENT AND QUALITY ASSURANCE

11.1. Factual information

11.1.1. Description of the global strategy of the Establishment for outcome assessment and Quality Assurance (QA), in order to demonstrate that the Establishment:

-) has a culture of QA and continued enhancement of quality;
-) operates *ad hoc*, cyclical, sustainable and transparent outcome assessment, QA and quality enhancement mechanisms;
-) collect, analyse and use relevant information from internal and external sources for the effective management of their programmes and activities;
-) informs regularly staff, students and stakeholders and involves them in the QA processes;
-) closes the loop of the QA Plan-Do-Check-Act (PDCA) cycle;
-) is compliant with ESG Standards.

The FVM has a **fully implemented QA System** composed of three bodies, namely the Committee for Assessment and Improvement of the Veterinary Degree Curriculum, the Quality Commission of the FVM, and the Faculty Council:

- At a first level, the Committee for Assessment and Improvement of the Veterinary Degree Curriculum is in charge of the day-to-day QA. This Committee is the coordination body of the Degree, and it is in charge of gathering information and evidences on the implementation and the development of the syllabus, according to the objectives, contents, teaching activities, assessment, communication and quality procedures established in the ANECA document of the Degree in Veterinary (<http://pendientedemigracion.ucm.es/centros/cont/descargas/documento20893.pdf>). It also collects data about the results and performance indicators of the Degree, and receives suggestions and satisfaction inputs from all parties, which are used to make improvement proposals. This Committee is responsible for the

preparation of self-evaluation reports that must be presented to UCM, and regional and national QA Agencies.

- The Quality Commission of the FVM is an upper body that coordinates and receives information (reports, improvement proposals, etc.) from the Committees for Assessment and Improvement of the undergraduate and postgraduate programmes offered by the FVM. It provides an integrated QA coordination within our Establishment.
- At the top level, the Faculty Council reviews the activities of the Quality Commission, and evaluates the improvement proposals, which, if approved, are implemented in the programmes.

The activities of the QA System of the FVM are coordinated by the Vice-Dean for Coordination and Quality. The functions and composition of the QA Committees are fully described on our website (<http://veterinaria.ucm.es/calidad-1>; Appendix 4), and were approved by the Faculty Council on December 21st 2010.

Our QA system guarantees that all internal (academic staff, support staff, and students), and external stakeholders (COLVEMA, public administrations, other Veterinary Faculties, etc.) are represented and participate as active members in the three bodies, in order to ensure a global and cyclic input/output from all the parties. The contribution of students and external stakeholders is of paramount importance to guarantee a continuous improvement of the Veterinary Degree, to match the expectations of the students for high quality training, and the prospects of the veterinary profession.

On the other hand, the UCM has a Quality Office (<https://www.ucm.es/oficina-para-la-calidad>), dependent of the Vice-Rectorate for QA. This Office gathers institutional academic indicators, evaluates the self-evaluation reports of all UCM programmes, and submits those reports to the external regional and national QA agencies. It also conducts institutional satisfaction surveys for all stakeholders, and runs the Docencia-UCM programme for teacher assessment.

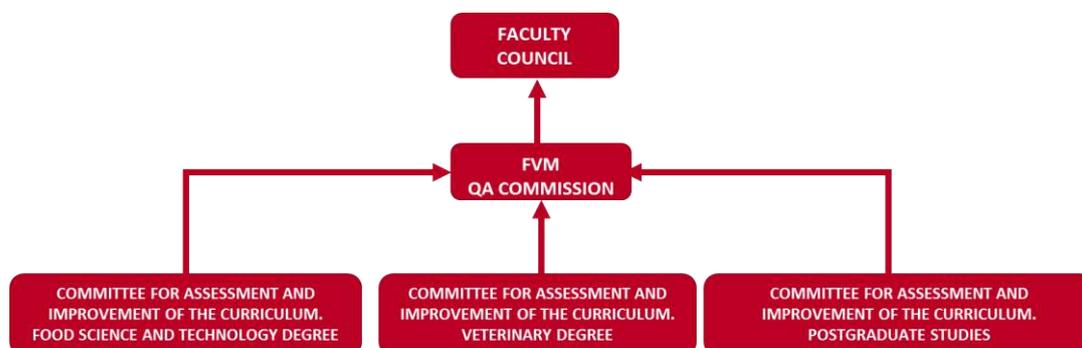


Figure 11.1. QA system of FVM



The QA System of the FVM includes the following **procedures**:

- Academic follow-up report of the Degree. Each academic year, a performance report is prepared from data on academic results, which is compared to those of previous years.
- Teaching follow-up meetings. Two types of meetings are held to monitor the progress of the Degree during each academic year; one of them is held with subject coordinators, and the other one is open to all the Faculty stakeholders, with students playing a central role. These meetings are held in the classroom, and are considered as a key tool of our QA system.
- Direct input from student representatives (Delegación de Estudiantes), which actively collaborate in both coordination and quality assessment.
- Complaint and suggestion mailbox, at the disposal of students, teachers and support staff.
- Internal surveys completed by students, teachers and support staff.

The system also receives external input from the following sources:

- Satisfaction surveys conducted by the UCM Quality Office, which are completed by students, teachers, support staff, and external stakeholders, including FVM alumni.
- DOCENTIA-UCM Programme, which includes, among other items, teacher assessment by the students.
- External QA Agencies (ANECA, ACAP-Fundación madri+d).

In relation to the participation of students in the QA system, it is important to note that not only FVM undergraduates, but also students from other UCM Faculties and other Universities, take part in assessment, mainly in relation to communication, transparency, evaluation and support.

The activity of our QA system is summarised in an **annual Self-Evaluation Report** (*Memoria de Seguimiento del Grado*), based on the aforementioned procedures and data sources. The items evaluated are:

- Communication and transparency.
- Structure and functioning of the QA.
- Performance indicators.
- Implementation of systems for quality improvement.
- Implementation of the recommendations by QA Agencies in previous evaluations.
- Modification of the syllabus.
- Evaluation of the strengths and weaknesses of the programme.

The **QA system is evaluated** annually by the UCM Quality Office, and periodically by regional and national QA Agencies. The issues and recommendations received from these evaluations are analysed by the QA System to implement the corresponding improvement measures. As established by the Ministry of Education, Culture and Sport, a complete accreditation of the Veterinary Degree syllabus will take place in 2017.

As a result of the implementation of the QA system, the FVM has coined its mark "Veterinary is Quality", which accompanies all improvement plans and projects for QA. This mark also reflects the quality culture of our Establishment.

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

All the proposals and actions of the QA system are discussed and approved by the corresponding bodies, and made formal by the Faculty Council, for their implementation in the programming and planning for the next academic year.

Complete information about our quality policy, procedures and performance is available on the FVM website (<http://veterinaria.ucm.es/calidad-1>), which includes, among other aspects:

- The composition of the QA committees and their internal regulations.
- Self-evaluation reports.
- Improvement plans.
- Results on satisfaction surveys.
- Reports issued by QA agencies (UCM Quality Office, ANECA, ACAP-Fundación madri+d) on the assessment of the FVM QA system.
- The Strategic Plan of the FVM (2017-2020).
- Innovative projects.
- Complaint and suggestion mailbox.
- Information about awards of excellence given to our teachers and students.

The activities of the QA system are also advertised as headlines on the FVM website, Virtual Campus, classroom screens, informative displays, e-mail and social networking (YouTube, Facebook and Twitter: <https://www.youtube.com/channel/UCGYLruwxnn7rl-j4mo3bf9Q>; <https://es-es.facebook.com/FacultadVetUCM/>; <https://www.facebook.com/HCVetUCM/>; <https://twitter.com/VeterinariaUCM?lang=es>), and occasionally through printed posters and leaflets.

Finally, the FVM has recently issued a Veterinary Bulletin reporting the most relevant news and activities underway in our Establishment (<http://veterinaria.ucm.es/publicaciones>).



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

Information regarding the academic planning of our educational programmes (once approved by the Faculty Council) is available on the FVM website at least two months before the academic year starts, so that students can organise their activities for the following academic year before registration. General information about the Veterinary Degree (description of the syllabus, subjects and admission) is published in the link <https://www.ucm.es/estudios/grado-veterinaria>. Detailed information on the planning for each academic year is also available (<http://veterinaria.ucm.es/grado-veterinaria-1617>). Finally, specific information on each subject is available for teachers and registered students through the UCM Virtual Campus (<http://www.ucm.es/campusvirtual>).

Quantitative and qualitative information about the programme (performance indicators, results of satisfaction surveys, etc.), and awards, is regularly published on the website (<http://veterinaria.ucm.es/calidad-1>).

Other means of dissemination have been explained in 11.1.2. Information is continuously updated.

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

All the QA processes of the FVM have already been described in the corresponding standards.

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

The QA strategy of the FVM is decided by our QA System, within the framework of the UCM Quality Office. Strategy is revised on the basis of self-evaluation reports, data collection from internal and external stakeholders, and the inputs from external QA agencies. The QA committees of the FVM are composed of representatives of academic staff, support staff, students and external stakeholders, with the aim to achieve an integral quality culture in our Establishment. In particular, the participation of the President of COLVEMA in the Committee for Assessment and Improvement of the Veterinary Degree Curriculum, and of a representative of the Spanish Conference of Veterinary Faculties (<http://conferencia-decanos-veterinaria.es/>) in the Quality Commission, ensures the connection with society, the veterinary profession and the veterinary education in Spain. All the information about our QA System is

available online (<http://veterinaria.ucm.es/calidad-1>), and is fully described in Appendix 4. Information is also disseminated as explained in 11.1.2.

11.2. Comments

The implementation and development of a QA System has been a key objective for the FVM, and noticeable changes can be observed in this respect, in comparison to the last EAEVE visitation. However, as it depends on the Quality Office of the UCM, our QA System must conform to general rules that do not always adapt to the characteristics and requirements of the FVM. We believe that quality cannot be measured by using fixed and common parameters for all UCM academic programmes; our teaching distinctive features demand specific attention and resources different to other Degrees.

Some of the improvements implemented by the QA System are especially recognised by the students, such as the follow-up meetings with teachers, and the publication of the teaching planning previous to enrolment, which allows students to organise their future activities.

People are our main asset. The high number of applicants for our Veterinary programme requires the selection of students with the best academic records, and highly motivated, which is complemented by a team of committed teachers, experts in their fields, with initiative, and keen to participate in any aspect related to the improvement of teaching quality. Our staff is also a key factor for a good performance of our QA System. In this way, a milestone of the implementation of quality culture in our Faculty was the **1st National Conference on Teaching Innovation in Veterinary Science**, held in February 2014.

11.3. Suggestions for improvement

Certain autonomy would be desirable to develop the improvement potential of the FVM in relation to specific QA standards and management procedures. The position of the FVM in world rankings (e.g., QS World University Ranking), should be an incentive for the UCM Rectorate to allow more autonomy in decision-making processes.

Although human and equipment resources are remarkable, an effort should be needed to improve the infrastructures of the FVM.

Many QA actions have already been implemented and incorporated into the curriculum and the global activity of the FVM, but, as stated in the Strategic Plan, those initiatives will help to face new challenges, including the review of the Veterinary Degree syllabus, optimisation of subject content coordination, promotion of permanent education and postgraduate programmes, online training and employability studies, among other objectives.

12.

ESEVT Indicators



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12. ESEVT INDICATORS

12.1. Factual information

	Calculated Indicators from raw data	Calculation*	FVM	Minimal	Balance
I1	n° of FTE academic staff involved in veterinary training / n° of undergraduate students	238.63 / 1,162	0.205	0.13	0.079
I2	n° of FTE veterinarians involved in veterinary training / n° of students graduating annually	194.6 / 161.666	1.204	0.59	0.614
I3	n° of FTE support staff involved in veterinary training / n° of students graduating annually	142.4 / 161.666	0.881	0.57	0.314
I4	n° of hours of practical (non-clinical) training	725	725	595	130
I5	n° of hours of clinical training	743	743	670	73
I6	n° of hours of FSQ & VPH training	643	643	174.4	468.6
I7	n° of hours of extra-mural practical training in FSQ & VPH	36	36	28.8	7.2
I8	n° of companion animal patients seen intra-murally / n° of students graduating annually	7156 / 161.666	44.264	42.01	2.255
I9	n° of ruminant and pig patients seen intra-murally / n° of students graduating annually	101.333 / 161.666	0.627	0.46	0.163
I10	n° of equine patients seen intra-murally / n° of students graduating annually	247.666 / 161.666	1.532	1.30	0.234
I11	n° of rabbit, rodent, bird and exotic seen intra-murally / n° of students graduating annually	343.3 / 161.666	2.124	1.55	0.579
I12	n° of companion animal patients seen extra-murally / n° of students graduating annually	-	-	0.22	-
I13	n° of individual ruminants and pig patients seen extra-murally / n° of students graduating annually	3,279.5 / 161.666	20.286	6.29	13.991
I14	n° of equine patients seen extra-murally / n° of students graduating annually	460.5 / 161.666	2.848	0.60	2.253
I15	n° of visits to ruminant and pig herds / n° of students graduating annually	397 / 161.666	2.456	0.55	1.908
I16	n° of visits of poultry and farmed rabbit units / n° of students graduating annually	46.7 / 161.666	0.289	0.04	0.244
I17	n° of companion animal necropsies / n° of students graduating annually	227.5 / 161.666	1.407	1.40	0.007
I18	n° of ruminant and pig necropsies / n° of students graduating annually	139.5 / 161.666	0.863	0.97	-0.107
I19	n° of equine necropsies / n° of students graduating annually	19 / 161.666	0.118	0.09	0.025
I20	n° of rabbit, rodent, bird and exotic pet necropsies / n° of students graduating annually	136.5 / 161.666	0.844	0.69	0.152
I21	n° of FTE specialised veterinarians involved in veterinary training / n° of students graduating annually	23.3 / 161.666	0.144	0.06	0.081
I22	n° of PhD graduating annually / n° of students graduating annually	49 / 161.666	0.303	0.09	0.215

*Average of the three last academic years

12.2. Comments

The raw data included for calculating indicators belong to a period of time coincident with the change of the syllabus. The official expiration of the old syllabus occurred in Y-2 (2013/2014), so the number of students finishing that year was higher than usual. Besides, the remaining students did not receive any practical teaching since they had already received it in the past. They only had the right to be evaluated. Even if they did not perform any practical training during the last two years, we have decided to include the global number of the old and new syllabus students when referring to the number of students graduating annually.

On the other hand, as shown in Tables of Chapter 5, due

to the change in syllabus and the reallocation of some subjects in the Degree schedule, some specific data have not been included for Y-2, because some practical training (necropsies and some extra-mural training) was not performed by the students during that academic year.

Clinical training indicators are adequate, even when collected data correspond to a period of economic crisis. When analyzing the indicators related to the different types of teaching, the strength of extra-mural veterinary practice in large animals is remarkable, especially ambulatory attention of horses and food-producing animals, as well as visits to farms and production units. This is the result of considerable effort during the last



years, as explained in Chapter 5. Other traditional strength of the FVM is practice on small animal veterinary medicine. Taking into account the high number of small animals attended intra-murally and during EPT, extra-mural learning is addressed to the large and food-producing animals. As an example, the number of small animals attended by students during EPT in 2015/2016 was 8,061.

The ESEVT recommends counting as one single patient an animal attended during a year, except if it has been treated for a different clinical episode. Our data system does not allow differentiating if a visit is due to the same or a different condition. In order to avoid overestimating the data, an animal attended during a year has been counted as a single patient. However, in the VTH, the number of visits is significantly different from the number of attended animals both in small animals and in horses. As included in Table 5.1.3, the average number of visits per year during the last 3 years was 22,825 for small animals and 1,803 in the case of horses. In order to reflect more accurately the activity of some intra-mural services, according to the structure of the clinical rotations for the students, and considering that a patient can be treated in different specialties, information about the total number of visits for small animals and horses has also been

included.

The only indicator below the recommended minimal value is the number of ruminant and pig necropsies. This indicator is affected by the absence of data for Y-2, when students did not perform necropsies due to the syllabus change, as previously explained. If only the data of the last two years (when students really made necropsies) are used for the calculations, the indicator is over the recommended value (0.972).

Even considering the significance of the clinical training, following the One Health approach, FSQ & VPH training is also considered essential in our Establishment, as reflected by the indicators.

12.3. Suggestions for improvement

The ESEVT indicators are overall satisfactory, and globally reflect the efficient activity of the FVM. However, as the rest of Veterinary Establishments in Spain, we consider that it is necessary to extend the duration of the Degree to an additional semester. This would allow improving the student training without increasing the already high on-site learning of the current syllabus.

Glossary

List of appendices



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Glossary

Abbreviations

ACAP: Regional Agency for Quality, Accreditation and Prospective (*Agencia de Calidad, Acreditación y Prospectiva*).

AECOSAN: Spanish Agency for Consumer Affairs, Food Safety and Nutrition (*Agencia Española de Consumo, Seguridad Alimentaria y Nutrición*).

AEMPS: Spanish Agency of Medicinal Products and Medical Devices (*Agencia Española de Medicamentos y Productos Sanitarios*).

ANECA: Spanish Agency for Quality Assessment and Accreditation, ENQA member (*Agencia Nacional de Evaluación de la Calidad*).

ANEMBE: National Association of Spanish Specialists in Bovine Medicine (*Asociación Nacional de Especialistas en Medicina Bovina de España*).

AVEM: Spanish Association of Municipal Veterinarians (*Asociación Española de Veterinarios Municipales*).

AVEPA: Spanish Small Animal Veterinarians Association (*Asociación de Veterinarios Especialistas En Pequeños Animales*).

BOE: Spanish Official Bulletin (*Boletín Oficial del Estado*).

BSL: Biosafety level.

BUC: Library of the Complutense University of Madrid (*Biblioteca de la Universidad Complutense*).

CEI: Moncloa Campus of International Excellence (*Campus de Excelencia Internacional Moncloa*).

CISA: Animal Health Research Centre (*Centro de Investigación en Sanidad Animal*).

CNIO: National Oncological Research Centre (*Centro Nacional de Investigaciones Oncológicas*).

COLVEMA: Official College of Veterinary Surgeons of Madrid (*Colegio Oficial de Veterinarios de Madrid*).

CSIC: Spanish National Research Council (*Consejo Superior de Investigaciones Científicas*).

EAEVE: European Association of Establishments for Veterinary Education.

EBVS: European Board of Veterinary Specialisation.

ECTS: European Credit Transfer and Accumulation System.

ENQA: European Network for Quality Assurance in Higher Education.

EPT: External Practical Training.

ESEVT: European System of Evaluation of Veterinary Training.

FPU: Pilot Food Processing Unit.

FSQ: Food Safety and Quality.

FVM: Faculty of Veterinary. Complutense University of Madrid.

FTE: Full-Time Equivalent.

HACCP: Hazard analysis and critical control point.

INIA: National Institute of Agro-food Research (*Instituto Nacional De Investigaciones Agrarias*).

IT: Information Technology.

LOMLOU: University Organic Law (*Ley Orgánica de Universidades*).

MECES: Spanish Framework for Qualification for Higher Education (*Marco Español de Cualificación para la Educación Superior*).

MRI: Magnetic Resonance Imaging (*Resonancia Magnética*).

OIE: World Organisation for Animal Health.

QA: Quality Assurance.

SOP: Standard Operating Procedure.

SWOT: Strengths, Weaknesses, Opportunities, Threats.

UCM: Complutense University of Madrid (*Universidad Complutense de Madrid*).

VISAVET: Health Surveillance Centre (*Centro de Vigilancia Sanitaria Veterinaria*).

VPH: Veterinary Public Health.

VTH: Veterinary Teaching Hospital.

List of appendices

Appendix 1. Current academic staff, qualifications, their FTE, teaching responsibilities and departmental affiliations.

Appendix 2.a. Units of study of the core veterinary programme (including clinical rotations, EPT and graduation thesis): title, reference number, ECTS value, position in curriculum (year, semester), whether it is compulsory or elective, hours and modes of instruction, learning outcomes.

Appendix 2.b. Alignment of the syllabus with the ESEVT Day One Competences.

Appendix 3. Maps of the Establishment and the intra-mural and extra-mural facilities used in the core veterinary programme.

Appendix 4. Written assessment procedures for QA.

Appendix 5. List of scientific publications from the Establishment's academic staff in peer reviewed journals during the last three academic years.

-) Other relevant documents

Annex 1.1.2. Strategic Plan, FVM, UCM.

Annex 1.1.5. Composition of Delegated Committees associated with the Faculty Council.

Annex 3.1.5. Example of activity distribution for a student during the Rotations.

Annex 3.1.8. List external entities with active agreement for External Practical Training

Annex 3.1.9. Logbook of practical skills acquired during the Rotations.

Annex 4.1.2. Premises for practical work.

Annex 4.1.4. Additional information of staff and facilities.

Annex 5.1.3. List of Farms/External Entities where FVM students acquire practical skills related to Animal Production, Herd Health, Preventive Medicine and Reproduction.

Annex 5.1.4. List of Farms/External Entities where FVM students acquire practical skills related to Ambulatory clinics.

Annex 10.1.2. European and National Diplomates.

Annex 10.1.3. Participation of the FVM students in the National Congress on Undergraduate Research in Health Sciences.

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