



UNIVERSIDAD COMPLUTENSE



Veterinary Faculty
Madrid, Spain

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INTRODUCTION

INTRODUCTION

The Veterinary Faculty of Madrid is an integral part of one of the oldest and most prestigious Universities in Europe, the Complutense University. The Veterinary Faculty was visited by the team of experts designated by the European Association of Establishments for Veterinary Education (EAEVE) on October 25-28, 1993. The team made some suggestions regarding deficiencies which implied that the training given at that time did not satisfy the requirements of the Directive 78/1027/EEC and some other observations on less relevant aspects. A follow-up visit was carried out in 1998 to check if improvements had been made after the first full visit. The report generated after this follow-up evaluation showed that the main deficiencies had been rectified and the Veterinary Faculty of Madrid was the first Spanish Veterinary Faculty included in the EAEVE's "List of visited and approved faculties".

The Spanish Education System has experienced numerous revisions and modifications in recent years. The ratification of the 1990 Law on General Organisation of the Education System (*Ley de Ordenación General del Sistema Educativo*, LOGSE) as the basic legal text on education entailed the repeal of the 1970 General Act on Education (*Ley General de Educación*, LGE). This new structure and organisation of non-university level education was implemented in the academic year 2002-2003. However the LOGSE was replaced by the Organic Law for Quality in Learning (*Ley Orgánica de Calidad de la Enseñanza*, LOCE) and a draft of the new Organic Law of Education (*Ley Orgánica de Educación*, LOE), was presented by the Spanish Government last March and will be applied in the academic year 2006-2007.

The centralised educational administration has been adapted to a decentralised model that divides educational competences into those reserved by the State, those entrusted to the Autonomous Communities and those committed to municipal governments. The Ministry of Education and Science (MEC) changed its structure in order to lead cooperation among the Autonomous Communities; to give cohesion to the actions of the various Autonomous Communities and to foster dialogue with all the Administrations, Institutions and Social Agents in order to establish the basic rules of the Spanish Education System. The decentralisation process has also reached the educational establishments themselves.

Spain has also undergone major changes in its Higher Education System. These changes have affected the universities, such as the Law on University Reform (*Ley de Reforma Universitaria*, LRU) which was recently replaced by the University Organic Law (*Ley Orgánica de Universidades*, LOU) approved by the Congress in December 2001. The implementation of this law has meant a profound modification of the structure of the different University Bodies and defined new types of academic posts, mainly for young teachers.

In Spain, university-level education is offered in University Faculties (*Facultades*), University Centres for First-stage Studies (*Escuelas Universitarias*) and Higher Technical Education Centres (*Escuelas Técnicas Superiores*), as well as others devoted to advanced artistic education.

Modification of Higher Education has also been advocated by European Governing Bodies. Some major changes have recently occurred in Europe regarding the development of a model regulating the structure of university education. The main thrust of the Sorbonne/Bologna declarations lies in proposing the creation of a European Space for Higher Education (ESHE). The Bologna Declaration does not aim at a true harmonisation of higher education in Europe but at more transparency to increase mobility of students and teachers. It recognises the importance of competition in a global Higher Education market. However, European Universities, despite the high quality of their education, have difficulty competing due to the lack of transparency of grades, the different structure of curricula and the non-recognition of some degrees.

The Bologna Declaration lists four main requirements of this future ESHE:

1. Adoption of a system of easily readable and comparable degrees, also through the implementation of a "Diploma Supplement".
2. Adoption of a system essentially based on two cycles, graduate and postgraduate.
3. Establishment of a system of credits –the European Credits Transfer System, ECTS– as a proper mean of promoting widespread student mobility.
4. Promotion of mobility by overcoming obstacles to the effective exercise of free movement for students and teachers.

The establishment of the ESHE implied the design of new regulations in our country (new decrees for the regulation of undergraduate and postgraduate studies, published in January 2005). The design of a new Curriculum for Veterinary Studies in Spain, adapted to the new goals and requirements established by the Bologna Declaration is currently being done by the Government and University Governing Bodies. Thus, Veterinary Educators in our country are currently faced with the challenge of improving and updating the present curriculum.

For that reason, the Veterinary Faculty of Madrid, together with the rest of the Spanish Veterinary Faculties, participated in a project funded by the Spanish Agency for Quality Assessment and Accreditation (ANECA). Its website can be seen for further information: (http://www.aneca.es/modal_eval/docs/libroblanco_jun05_veterinaria.pdf).

The results and conclusions of that Project reflect the current situation of Veterinary Science studies and the Veterinary Profession in Spain, and include some recommendations for the foreseeing future that will be very important for the imminent reform of the Veterinary curriculum in our Country. Recommendations and contributions of the EAEVE Experts' Team after this visit will also be of great value for that purpose.

However, until the implementation of this new curriculum, the Spanish decree issued on September 1991 (Royal Decree 1384/1991) still regulates the Veterinary Curricula. The present curriculum of our Madrid Veterinary Faculty was established in 1997, following the requirements defined in that Royal Decree.

The Veterinary Faculty of Madrid has made some significant advances (curriculum, structures, tools and equipment) since the full visit made by the EAEVE in 1993:

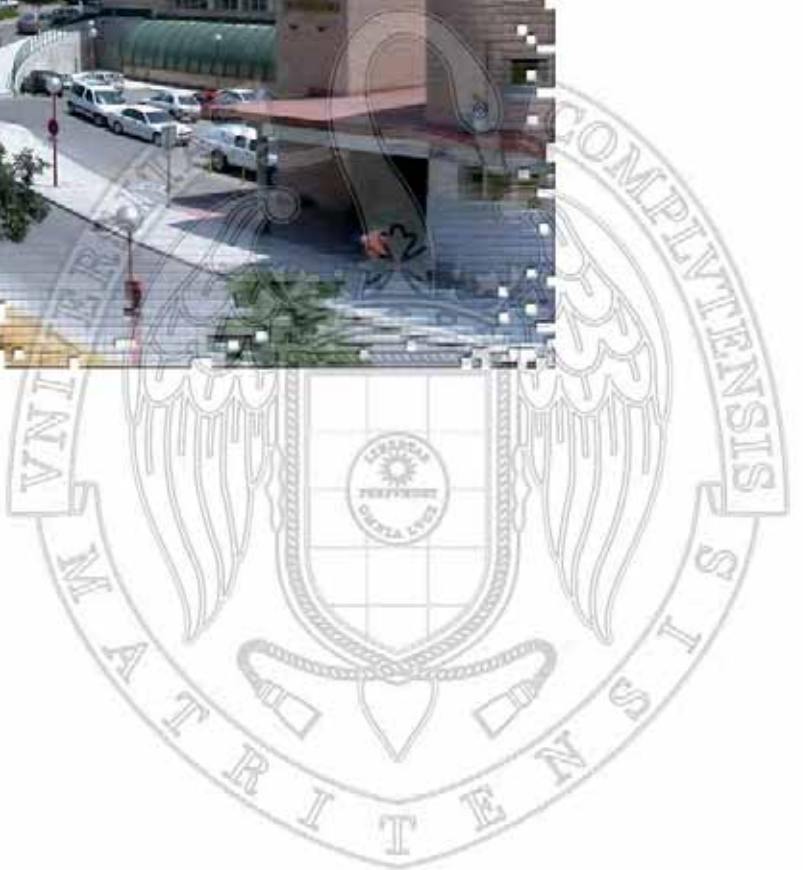
1. A new curriculum was applied in 1997 (Spanish Official Bulletin, *Boletín Oficial del Estado*, BOE, number 293, pages 36044-36066, 8 December 1997).
2. A significant reduction in the number of students' admissions/year has been made.
3. Important increase in the number of academic and support staff.
4. Completion and opening of the new Veterinary Teaching Hospital (*Hospital Clínico Veterinario*, HCV, 1998), including new necropsy rooms.

- 5.** Remodelling of the dissection room together with the installation of an extraction system in the Anatomy Building.
- 6.** Installation of two new facilities on the Teaching Farm: an experimental poultry unit building and a fenced area for small ruminants.
- 7.** Installation and refurbishment of new laboratories for practical teaching.
- 8.** Acquisition of four new vehicles for students' transport to extramural teaching activities and for general purposes.
- 9.** Creation of a collection system for residues (University level).
- 10.** Creation of an isotope laboratory and adoption of a specific collection system (Faculty level).
- 11.** Remodelling and installation of two computer rooms.
- 12.** Installation or improvement of computers and digital projection systems in all classrooms, auditoriums and most seminar rooms. Acquisition of portable digital projection systems and portable computers.
- 13.** Installation or renewal of air conditioning system in classrooms(Building B), cafeteria, library, auditoriums and many offices.
- 14.** Enlargement and refurbishment of a staff dining room.
- 15.** Refurbishment of the kitchen.
- 16.** Adaptation of two dressing rooms for personnel.
- 17.** Installation of an optical cable intranet.
- 18.** Installation of a wi-fi system in common areas (library, meeting, rooms, auditoriums, etc.).
- 19.** Remodelling of the Faculty entry from the highway.
- 20.** Repair of asphalt parking lots (main Building).
- 21.** Remodelling of the Faculty Web Site.
- 22.** Activation of some subjects on the Virtual Campus of the UCM (*Campus Virtual*).

- 23.** Change of the power supply in the Department of Anatomy and the Department of Food Science and Technology.
- 24.** Repair of gardens and installation of irrigation systems.
- 25.** Adaptation of buildings to accommodate the physically handicapped.
- 26.** Computerization and adaptation of the Library to the new IT-technologies/resources.
- 27.** Installation of acoustic panels between the Department of Animal Production and the highway.
- 28.** A new Research Institute has been created: the *Complutense* Institute for Animal Health (*Instituto Complutense de Sanidad Animal –ICSA-*), located in the ground floor of the HCV.

In addition, further projects are already in execution:

- 1.** Construction of the new Food Processing Unit.
- 2.** Construction of new laboratories for practical lectures, new research laboratories, offices and animal facilities for the Department of Animal Health.
- 3.** Repair of fences on the Teaching Farm.
- 4.** Opening of a Magnetic Resonance Imaging (MRI) Service in the HCV.



Chapter 1: OBJECTIVES

CHAPTER 1. OBJECTIVES

1. FACTUAL INFORMATION

Indicate whether there is an official list of the overall objectives of the establishment.

If this is the case, please indicate these:

- Who determines the official list of objectives of the establishment?
- By what procedure is this list revised?
- Do you have a permanent system for assessing the achievement of the establishment's general objectives? If so, please describe it.
- If there is no official list, please indicate the objectives that guide the Faculty's operation.

1.1. General Objectives of the Complutense University of Madrid:

The general goals of the Complutense University of Madrid (UCM) are defined in the Statutes of the University (Official Bulletin of the Community of Madrid, *Boletín Oficial de la Comunidad de Madrid*, BOCAM, number 125, pages 49-85, May 28th, 2003) in its article number 3:

1. The UCM is a higher education institution which through its teaching, study and research provides an essential public service.
2. The mission of the UCM is to serve society in the following areas:
 - 2.1. The creation, development, application and review of science, technical knowledge and culture.
 - 2.2. The training of professionals to practice in fields that require the application of knowledge and scientific methods or artistic creativity.
 - 2.3. The diffusion, evaluation and transfer of knowledge to promote culture, quality of life and economic development.
 - 2.4. The diffusion of knowledge and culture through the extension of university resources and continuing education to the society.

- 2.5. The teaching of principles of community values to members of the university community.
- 2.6. The cultural and scientific enrichment of the university community, in order to improve their capacity to anticipate social, ideological, cultural, scientific and technological changes.
- 2.7. The encouragement of scientific exchange, academic mobility and cooperation directed towards the development of societies around the world.

1.2. General Objectives of the Faculty:

The general objectives are achieved by means of our present Study-syllabus. The goals of the curriculum at the Veterinary Faculty of Madrid are to:

1. Provide each student with a broad general veterinary education according to the recommendations of the FVE, EAEVE (Newsletter number 9, 2000) and the European Project VET2020, allowing them to get a deeper knowledge in their areas of interest by choosing and building their “specialisation track” by means of elective subjects.
2. Provide each student with the sufficient knowledge and skills that form the basis to build a career in the profession, including the capability of making positive contributions to a team, developing good written and spoken communication skills and being competent in the use of computers for word-processing, data handling and information retrieval.
3. Promote critical thinking and scientific curiosity (emphasizing the scientific principles underlying veterinary medicine), so that graduates are equipped with a strong basis in veterinary science, practical skills and skills in continuous learning which will allow them to progress during their careers.
4. Promote habits of self-education and lifelong learning.
5. Promote ethical behaviour and sensitivity to the role of the veterinarian in society.

6. Development of problem-solving skills.
7. Stress preventive as well as therapeutic medicine.
8. Identify emerging concerns of the Spanish and international communities in which the Veterinary Faculty of Madrid has special knowledge and skills, and to determine the appropriate responses to these concerns.
9. Continue to develop collaborative arrangements, in both teaching and research in veterinary science, with related institutions in Spain and internationally.
10. Provide service to the community and the veterinary profession in terms of veterinary knowledge in animal health and disease, animal welfare and animal production and to ensure the quality and safety of animal products for human consumption.

1.3. Specific objectives of the Faculty:

According with the European Directives (78/1026 and 78/1027/EEC) and current Spanish legislation (Law of Health Professions 44/2003 –BOE; Spanish Official Bulletin of November 22nd, 2003- and the Spanish Specific Directive for Veterinary Studies, Royal Decree 1384/1991 –BOE; Spanish Official Bulletin of September 30th, 1991-) and recommendations for veterinary education, the specific goals of the Veterinary Faculty of Madrid are to provide adequate knowledge and professional skills to warrant animal and human health by means of:

1. Recognition, diagnosis, prevention, basic treatment (surgical or medical) and prognosis of common diseases of animals and to alleviate their pain and suffering.
2. Knowledge of international, national and regional legislation and procedures that should be applied to notifiable or zoonotic disease.
3. Contribution to the improvement of animal production whilst maintaining the promotion and safeguard of animal welfare, animal husbandry, reproduction and feeding.

4. Contribution to the economically feasible production of healthy and safe food products of animal origin, with the lowest environmental impact and safeguarding animal welfare, including sustainable production.
5. Contribution to public health by means of the development of policies, guidelines, operational procedures and strategies for the control of zoonotic and foodborne diseases.
6. Contribution to the development of legislative and administrative principles related to the veterinary profession and public health.

2. COMMENTS

In your view, to what extent are the objectives achieved?
What, in your view, are the main strengths and weaknesses of the establishment?

2.1. System for assessing the achievement of the objectives:

Achievement of the general and specific objectives is assessed and followed up by three systems:

1. The Faculty has a Committee for Teaching Affairs (*Comisión de Seguimiento Docente*, CSD). This Committee is composed by the Dean, two Vice-Deans (Vice-Dean for Students and Vice-Dean for Studies and Coordination), three teachers elected by the Faculty Council and the Student's Representatives in the Faculty Council. This Committee meets whenever necessary and, as a rule, twice a year for evaluation of each course. In these meetings the Committee meets in open sessions with the coordinators of all subjects taught in that course and sixty students randomly elected, with the objective of analyzing how the semester has evolved. After the meetings the Committee draws up a report which is distributed to all Subjects' Coordinators. In the last two years the Committee has designed and implemented some questionnaires for teaching evaluation in all subjects.

2. The UCM's Social Council (*Consejo Social*) recently performed a study about the professional insertion of three promotions from our Faculty (1994-1999, 1995-2000 and 1996-2001). In this study a special insight into the labour market description and requirements and the training provided to the graduates was made. Results have been taken into account to improve the training given to our students. A second study is now under development.
3. The UCM's Quality Office (*Oficina de Calidad*) has recently created a Program to establish a minimum set of quality-indicators to allow evaluation of studies in the UCM which also includes our veterinary degree.

2.2. Main Strengths and Weaknesses of the establishment:

STRENGTHS

1. **Students:** the Faculty has a good reputation and the demand for places in the Veterinary Faculty of Madrid far exceeds the number of available places. This together with the current (National) admission process, makes that the students entering our Faculty have excellent academic track records (at least 7.3 in a scale 0-10).
2. **Students Commitment/Participation:** students are always involved in all procedures related to course evaluation.
3. **Staff:** the Faculty has a good number of Academic and Support staff, most of them highly dedicated and motivated and very active in teaching and research.
4. **Interactive computer-assisted learning:** this is an increasing component of courses taught at our Faculty (one of the first centres of the UCM in the use of IT for teaching). Students are continuously encouraged to use the on-line Virtual Campus, which they can freely access from any computer connected to internet.

5. **Location:** one of the greatest advantages of the Veterinary Faculty of Madrid is its very convenient geographical situation in the heart of the country with good communication with all Spanish cities and regions. Moreover, the Faculty is located on a campus that is easily accessible for students, staff and clients both by private and public transportation due to its proximity to Madrid's downtown.
6. **External Relationships:** the Faculty has strong links with external organisations on a national and international level, including universities, public and private administrations, foundations, professional associations, etc. These links have very often lead to bilateral agreements that now allow our students to complete their training in extramural establishments.
7. **Organization:** the Faculty has a well-built degree of organization following the traditional Spanish organization created by the LRU in 1983 (Departmental structure), with specific Committees for teaching, research, curriculum, library, etc. This structure has proved to be very efficient and flexible in order to fulfill the responsibilities of the Faculty in the areas of academic life and governance
8. **Veterinary Teaching Hospital, Hospital Clínico Veterinario, HCV:** the HCV provides state-of-the-art veterinary medical services for veterinarians and the citizens of Madrid and surrounding regions and is committed to excellence in the diagnosis, treatment and management of animals. The HCV has modern facilities and treats companion, equine, farm, exotic and wildlife species through specialty services in internal medicine, general and orthopaedic surgery, emergency, critical care, anaesthesia, cardiology, ophthalmology, dermatology, oncology, diagnostic imaging, reproduction, etc. The HCV has optimal diagnostic and therapeutic capability with a high caseload, keeping a good relationship with private practitioners.
9. **Research:** the Veterinary Faculty of Madrid has a rich tradition in research. In the past two decades the Faculty has developed many national and international links of cooperation which have proved to be very fruitful for research. This support from private and government organizations is a vote of confidence in the kind of research and teaching under way in the Faculty.

The Veterinary Faculty of Madrid is committed to ensure animal and public health by expanding the frontiers of knowledge and pursuing advanced programs in basic and applied research in which the Faculty is at the forefront of technology. Research is at the core of the Faculty educational mission sharing the results of the investigations directly with students. This mechanism gives to the studies an incomparable immediacy and ensures that the graduates leave the Faculty with an appreciation of the most pressing questions in veterinary science. The Faculty collaborates with government agencies, and also with private companies and foundations to identify research needs, to expand established technologies and develop new ones, and to transfer knowledge and technology to society. All these contribute to keep our staff well in touch with the current reality and demands of the veterinary profession, which is a positive feature towards our students.

10. **Exchange Programs for Students and Teachers:** the Faculty has several agreements for academic exchange with national and international (both EU and non-EU) Veterinary Faculties, which have experienced a significant increase in recent years to respond to our students and staff demands.
11. **PhD Programme:** the PhD Programme of the Faculty has been positively evaluated by the Spanish Agency for Quality Assessment and Accreditation (*Agencia Nacional de Evaluación de la Calidad y Acreditación*, ANECA), receiving the “Quality Mention” (*Mención de Calidad*).

WEAKNESSES

1. **Buildings:** most of the existing buildings are in bad condition and need remodelling. They are already overcrowded, and in several places in markedly poor condition, and the lack of space for the development of activities is notable. The main building and most Departmental pavilions do not even fulfill the minimum security requirements in some cases. Space needs will even increase as soon as the UCM develops the university model emerged from the Bologna Declaration, specially through the introduction of new teaching systems (like problem-solving learning, team-work, etc.) that will require adaptation/transformation of infrastructures to build smaller lecture rooms, more computer rooms, etc. However, at the moment, the issue of rebuilding costs is a significant distorting aspect for the UCM.

2. **Power Supply:** although some improvements in two Departments have been made, the Faculty needs major changes to assure uninterrupted power supply, including the change of the old power wire installation, in order to guarantee the normal development of activities (teaching, research, etc.) and allow the installation of large equipments and air conditioning systems to solve the problem of excessive heat in some rooms during the summer.
3. **Admission:** the current Spanish Education System and University Access method allows admission of students with insufficient knowledge of some basic sciences, especially mathematics, physics and biology.
4. **Curriculum:** the current syllabus with a high teaching load, together with the low number of classrooms and laboratories for practical teaching causes some logistical problems, mainly for timetable coordination.
5. **Teaching Farm:** the Teaching Farm is old and inadequate, needing significant improvements.
6. **University Size:** the UCM's size difficults the collaboration with other faculties and makes the use of most general services (information for students, sports, cultural activities, computing and multimedia, protein and chemical analysis, flow cytometry, electronic microscopy, etc.) quite complicated. Moreover, the current university resources are not enough to solve the academic and structural problems of such a big University and to cover the core commitments of its faculties, including the Veterinary Faculty.
7. **Continuing education:** although there are several activities related with continuous education (CE), the Faculty organizes, in average, a low number of courses and CE activities, field which needs to be promoted to reach optimal levels. This is in part due to the lack of tradition and professional policies on the requirement of CE for veterinarians in Spain, which should be implemented. However, the lack of adequate classrooms for these purposes also limits the number of activities that could be held in the Faculty.

8. **Cost of Living:** Madrid is a very expensive city to live in (more expensive than most other Spanish cities with a Veterinary Faculty). In particular, the costs of accommodation and transportation are significantly high. This high cost of living and the lack of enough University residences for student's accommodation are big problems for international students and students from other regions of Spain.

3. SUGGESTIONS

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

To address some of the problems mentioned above, the Faculty suggests:

1. **Teaching Farm:** an ambitious programme of investment, equipment, maintenance and refurbishment of the Teaching Farm should be definitively approved and developed. The teaching farm should be equipped with adequate infrastructure to carry out practical activities on different animal production systems (dressing rooms for personnel and students, offices, milking room, animal quarantine area, slaughterhouse, etc.) including the most advanced from a technological point of view and maintaining the strictest code of biosecurity.
2. **Classrooms, Seminars, Computing Rooms and Library:** the implantation of the new curriculum and the new teaching methodologies offered by the ESHE will create an increased need of more rooms for student group work, seminars and larger and better equipped Library and Computing Rooms. Also the new Masters Programmes will increase the demand for rooms for group work and research.
3. **Teaching Courses for Staff:** to face the great challenge of the ESHE more courses on new teaching methods should be offered.

4. **New curriculum:** in the new curriculum, that should be designed in the next future, the Departments should make efforts to further integrate the teaching of the different subjects, in particular to relate the pre-clinical with the clinical disciplines and the current lecture-load of students should be decreased. A period of time free of tabled lectures could be programmed at the end of the degree, in order to avoid schedule coincidences and to enable students full time dedication to practical training.



Chapter 2: ORGANISATION

CHAPTER 2. ORGANISATION

1. FACTUAL INFORMATION

Details of 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 3943896

Fax: 00 34 91 3943883

Website: <http://www.ucm.es/info/webvet>

E-mail: decanato@vet.ucm.es

Title and name of head of the establishment: *Dr. Joaquín Goyache Goñi*

Is the establishment within a university?: Yes

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

Competent authority overseeing the establishment: Ministry of Education and Science, *Ministerio de Educación y Ciencia (MEC)*, and Education Secretary of the Autonomous Community of Madrid, *Consejería de Educación de la Comunidad Autónoma de Madrid (CAM)*

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

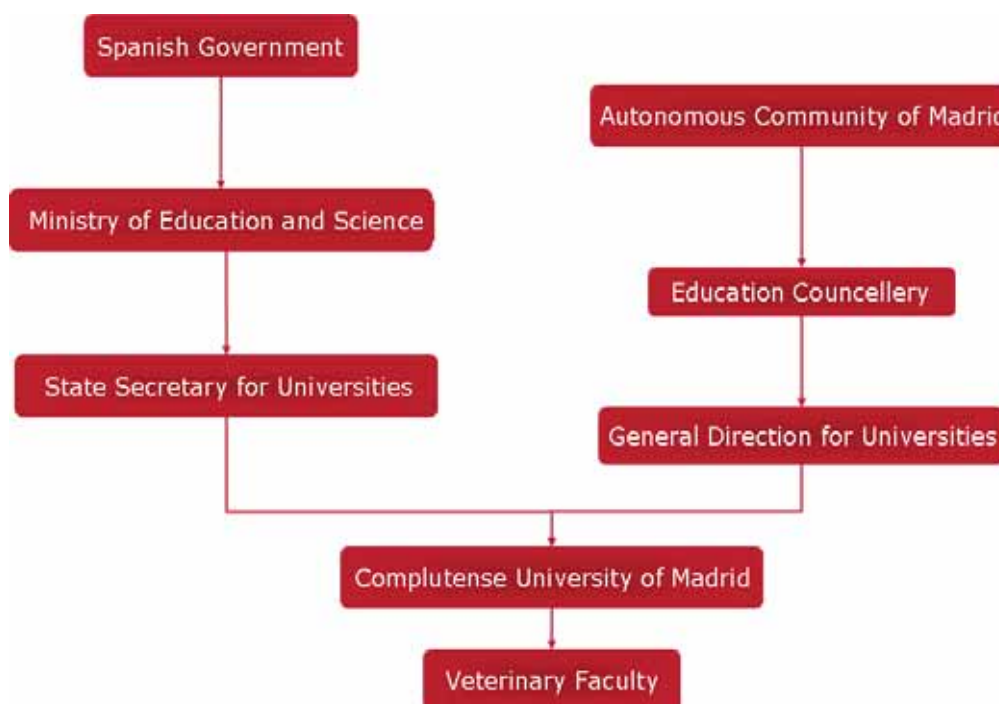


Figure 1. Administrative structure: Relationship of the Faculty with the University and Government Bodies.

The Complutense University of Madrid

The *Complutense* University of Madrid (UCM) is a Public University dependent on the Spanish Ministry of Education and Science (MEC) and on the government of the Autonomous Community of Madrid (CAM). The UCM is an Institution ruled in accordance with article 27.10 of the Spanish Constitution and the University Organic Law 6/2001, dated 21 December (*Ley Orgánica de Universidades*, LOU).

Within the framework of its autonomy the activity of the UCM is based on the principle of academic freedom, featured in the freedom of Chairs, research and study. These principles and liberties inspire the interpretation of the rules the University abides by.

The various Departments and centres offer 77 official degrees, some 230 postgraduate courses and more than 200 PhD programmes. More information can be found in the webpage of the UCM (<http://www.ucm.es>). The academic area is complemented with a wide offer of sport and cultural activities, with which the University contributes to the training not only of good professionals but also of good citizens.

The UCM is immersed in an adaptation and quality control process to guarantee its merger with the European Space for Higher Education (ESHE), following the Bologna Declaration, which implies the adaptation / innovation of its teaching, teaching methods and infrastructure.

The most relevant data on the UCM are shown in Tables I and II:

Table I. Faculties, Departments and Services of the UCM (2003-2004)

<u>Official degrees</u>	<u>77</u>
Three-year Degrees (<i>Diplomaturas</i>)	24
University and Engineering Degrees	40
Second Cycle University Degrees	13
<u>Complutense Postgraduate Qualifications</u>	<u>238</u>
Master	126
Specialist	33
Expert	79

PhD Programmes	212
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Centres and Departments

Faculties	20
Centres for First-stage Studies	6
University Research Institutes	43
Schools for Professional Specialization	9
Departments	184
Departmental Sections	43
Research Assistance Centres	17
University Hospitals	5
Associated Centres	9
Residence Halls	41

Library

Libraries	34
Volumes	2,524,356
Periodical publications	44,328
Historic collection	85,778

Table II. Most relevant data UCM (2003-2004)

<u>Students Enrolled</u>	<u>95,869</u>
Faculties	64,068
Centres for First-stage Studies	8,044
Doctorate Programmes	11,576
Associated Centres	12,181
<u>Student Associations</u>	<u>80</u>
<u>Teaching Staff</u>	<u>5,961</u>
<u>Support Staff</u>	<u>3,540</u>
<u>UCM members with disabilities</u>	<u>264</u>
<u>Budget 2004</u>	<u>464,044,292.23 €</u>

Provide a diagram of the internal administrative structure of the establishment itself (councils, committees, Departments, etc).

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

Indicate the rules concerning the appointment of the elected officials of the establishment (Dean, Vice-Dean, Heads of Department, etc).

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

- A. **Faculties:** Responsible for organizing the teaching and the appropriate carrying out of teaching activities.
- B. **University Departments:** Responsible for the teaching within the Department (as stipulated by the Faculty Council), and also for the research activity at postgraduate level.

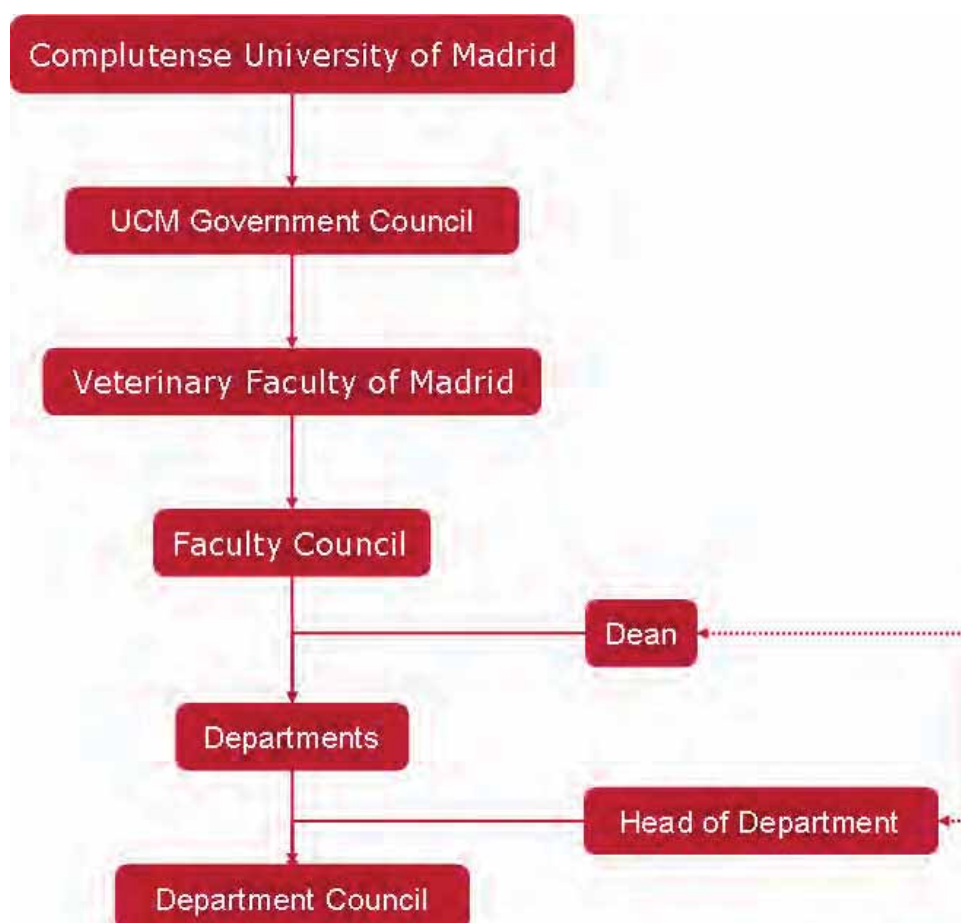


Figure 2. Organisation of the Veterinary Faculty and the Faculty Departments.

The Veterinary Faculty

The Veterinary Faculty of Madrid was given the Status of Higher Education in 1923, and in 1943 it was integrated in the *Complutense* University to become the Faculty of Veterinary Science. In 1968, the Faculty moved to its present location on the University Campus.

The Veterinary Faculty is responsible for the teaching of two Degrees:

1. **Degree in Veterinary Science.**
2. **Degree in Food Science and Technology.**

The Veterinary Faculty is governed primarily by the Statutes of the UCM (2003), and for its basic operating procedures follows what is laid down in its Internal Regulation (*Reglamento de Régimen Interno*, approved by the Faculty Council on 9/12/1999). The UCM Statutes 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.
- ❖ The Dean's Office includes: five Vice-Deans with delegated functions related to specific academic activity areas, the 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. There are also two Vice-Secretaries, in charge of the coordination of the subject *Placements* and the IT-Services.
- ❖ The Faculty Council is the Management and Governing body of the Centre. It is composed by representatives of 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 contracted teaching and research staff and research scholars (12%), representatives of the support staff (5%) and student representatives (25%).

Table III. Dean's Office.

Dean	Joaquín Goyache Goñi
Vice-Dean for European Convergence and International Relations	Cristina Fragío Arnold
Vice-Dean for Studies and Coordination	Agustín Viveros Montoro
Vice-Dean for Food Science And Technology	Teresa García Lacarra
Vice-Dean for Students	Marta González Huecas
Vice-dean for Research	Víctor Briones Dieste
Faculty General Manager	Benigno López Fernández
Faculty Secretary	Margarita Martín Fernández
Vice-Secretary for <i>Placements</i>	Manuel San Andrés Larrea
Vice-Secretary for IT-Services	Ignacio Arija Martín

Committees associated with the Faculty Council

The Faculty Council has a series of Delegated Committees which are responsible for specific areas.

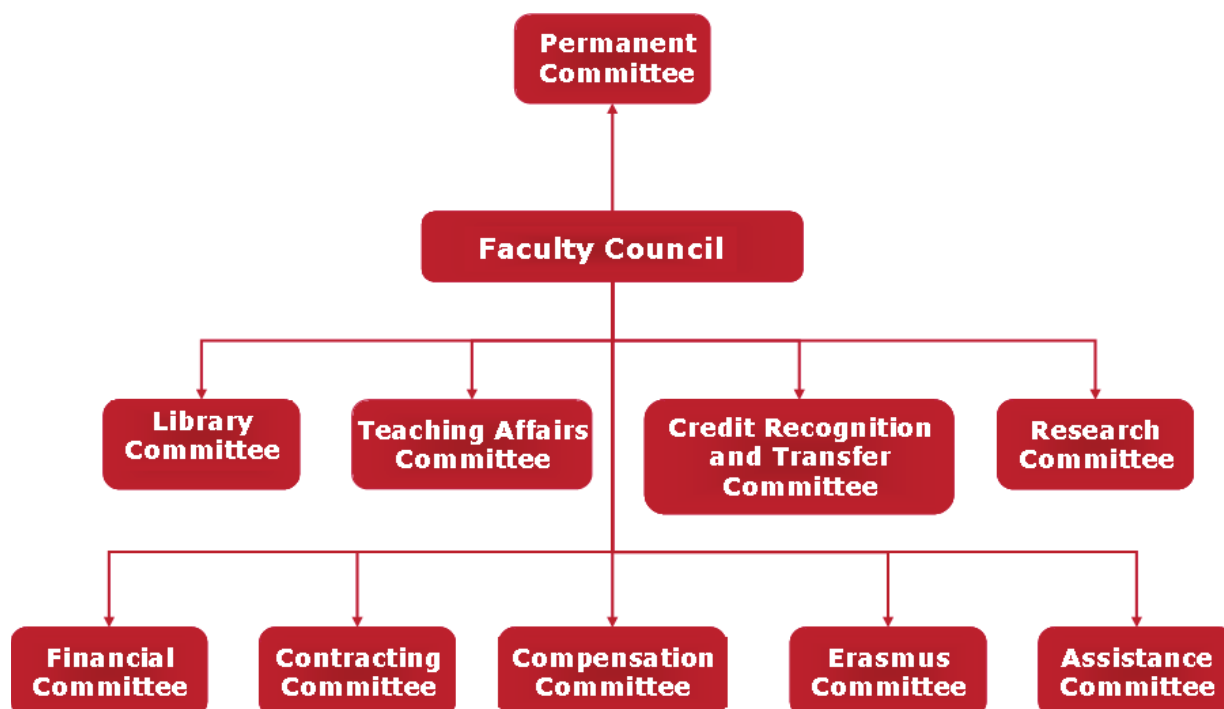


Figure 3. Delegated Committees associated with the Faculty Council.

Permanent Committee of the Faculty Council

Its remit is to substitute the Faculty Council to deal with day to day matters. It includes the Dean, the Faculty Manager, the Faculty Secretary, all the Heads of the Departments and a students' representative.

Community Assistance Committee

It advises and informs on all non-teaching, non-research services which contribute to the improvement and welfare of the University Community within the Faculty. It includes the Dean, the Manager, two representatives of the teaching staff, one representative of the administrative and support staff and one students' representative.

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. It includes the Vice-Dean for Research, the Manager, the Director and Sub-director of the Library, a representative of each of the Departments and a students' representative.

Financial Committee

Its responsibilities are the distribution of the budget and any other financial funds of the Establishment, and to draw up the criteria needed to carry out this distribution. It is made up of the Dean, the Manager, the Heads of all the Departments and a students' representative.

Contracting Committee

Its mission is to propose the nominations of the candidates presented for the different contracted posts, depending on their merits. Its composition depends on the post under evaluation.

Research Committee

Within its remit is the drawing up of scales and evaluation of candidates for the different research posts offered by the UCM as well as the evaluation of the scientific output of the different Departments of the Centre to distribute the financial assistance for research assigned yearly by the UCM. It includes the Vice Dean for Research and a representative of each Department.

Committee for Teaching Affairs

Its basic aim is to analyse problems related to the teaching programme, to detect and solve problems arising from the timetables of lectures and practices or any other teaching subject related incidence arising during the course. Regular meetings are held per course and semester, which are attended by the Dean, the Vice-Deans for Students and Studies, the coordinators of the core subjects and 60 students chosen at random from the students enrolled in the courses being evaluated.

Compensation Committee

This is created to solve specific academic situations. Its activity is restricted to the first two years of the Degree. It includes the Vice-Dean for Students and the Coordinators of the course subjects.

Credits Recognition and Transfer Committee

Its competences are to establish the criteria and tables for credit recognition and transfer for those students who change their syllabus, transfer from other faculties or present any other circumstance which requires recognition and transfer. It includes the Dean or a delegate, the Vice Deans for Students and Studies, the Head of Student Secretary Office and several teachers designated by the Faculty Council among those involved in the teaching of core subjects in the second cycle.

Erasmus Committee

Its function is to establish the subject equivalences and credit transfers for those students who study abroad with Socrates-Erasmus scholarships. It is formed by the Vice-Dean for International Relations, the Erasmus Coordinator of the Food Science and Technology Area (*Ciencia y Tecnología de los Alimentos, CYTA Degree*) and a representative of each of the Departments involved in the teaching of the second cycle of the Degree in Veterinary Science.

A. The 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 (Table IV). 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 for the Department. It is made up of all the doctorate members 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 in 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.

Table IV. Veterinary Faculty Departments

Department/ Section	Head
Anatomy	Pilar Marín García
Animal Health	Ricardo de la Fuente López
Animal Medicine and Surgery	Juana María Flores Landeira
Animal Physiology	Juan Carlos Illera del Portal
Animal Production	Pedro F. Rouco Pérez
Applied Physics (Departmental Section)	Teresa García López de Sa
Biochemistry and Molecular Biology IV	M ^a Teresa Miras Portugal
Food Science and Technology	Lorenzo de la Hoz Perales
Toxicology and Pharmacology	Arturo Anadón Navarro

B. Management .

In accordance with the Statutes of the UCM the Faculty Manager acts as line manager for the support staff and manages the administrative and financial services of the Faculty. Fig. IV shows the services in the Veterinary Faculty which are the responsibilities of the Manager.



Figure IV. Services of the Faculty dependant on Management Office.

Table V. Administrative Services Directors

General Manager	Benigno López Fernández
Financial Affairs Section	Amador Sánchez Calvo
Students´ Secretary Office	Francisca Lozano Mena
Personnel Section	Salvador González Luján
Library	M ^a Angeles Lacasa Otín
General Services	Pablo Megino Ródenas
Computer Services	Ignacio Parra Flores

- ❖ **Financial Affairs Section:** This is responsible for the administration of the budget, both teaching and research. It is directly related to Management and to the Departments.
- ❖ **Students´ Secretary Office:** The Secretary for Students is responsible for the student admission, enrolment and any other academic matters, both undergraduate and postgraduate.
- ❖ **Personnel Section:** The main responsibility of this Section is the Human Resources management of all Faculty staff, Teaching and Support. This includes dealing with all bureaucratic matters for staff related to the Rectorate as well as leave of absence, sick leave and other administrative formalities for staff joining or leaving the Faculty.
- ❖ **Library and Computer Services** (see Chapter 8)

C. Veterinary Teaching Hospital (*Hospital Clínico Veterinario*, HCV).

The HCV carries out appropriate clinical and support tasks for teaching and research, in line with current legislation. The organisational and functional regime of the HCV is governed by its own General Regulations. Its administrative and financial management is independent of the Faculty.

Its governing body is the HCV Council, chaired by the Vice-Rector of Studies, and integrated by the Vice-Rector of Centres and Departments, the HCV's Director, Subdirector, Secretary and Manager, the Dean of the Veterinary Faculty, the Heads of the Departments of Medicine and Surgery and Animal Health, the Heads of the Small Animal, Large Animal and Central Services Areas, and representatives of the different Services and academic and support staff working at the HCV, and of students and interns involved in clinical training at the HCV (Total number of HCV Council members are 24).

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

1. At University level

The UCM's Social Council (*Consejo Social de la UCM*) is the body which links society with the University and its aim is to achieve better quality teaching, reinforce the research capacity and encourage the social, economic and cultural progress of the society of which it is a part. It is the responsibility of the Social Council to supervise the financial activities of the University and the performance of its services; to promote the collaboration of the society in the funding of the University and the relationships between it and its cultural, professional, economic and social environment to ensure the quality of the University activities. The Social Council is composed of representatives of different social interest groups (personalities from the cultural, professional, financial and social spheres) who may not be members of the University Community.

2. At Faculty level

The Governing Bodies of the Faculty maintain a permanent relationship with the representatives of the Veterinary profession so as to include their interests in the teaching and research carried out in the Faculty.

The best example of this relationship is the presence in the Governing Board of the Official College of Veterinary Surgeons of Madrid (*Ilustre Colegio Oficial de Veterinarios de Madrid*, ICOVM) of a representative of the Veterinary Faculty, always a teacher from the Faculty, who acts as intermediary/link between both Institutions, to guarantee fluent collaboration and communication.

In addition, many teaching staff members of the Faculty form part of the Governing Boards of many regional and national Professional Associations which guarantees the close relationship and understanding of the professional reality. On top of that, the HCV also has a good relationship with the Associations of Private Clinicians and holds periodic meetings with their representatives, collaborating closely with them.

2. COMMENTS

Add any comments on the organisation and functioning of the establishment which you feel useful for completing the description.

Since 1987, the Faculty has an organization based on eight Departments and one Departmental Section. The Departments have a large degree of autonomy with respect to teaching and administrative matters. Each Department is responsible for its teaching and research programmes.

3. SUGGESTIONS

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

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

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



Chapter 3: FINANCES

CHAPTER 3. FINANCES

1. FACTUAL INFORMATION

The University Organic Law (LOU) states that the economic and financial autonomy of the Universities is a fundamental issue. In this context, (article 2.2. h) the LOU configures as an essential right of each University the autonomy in the drawing up, approval and management of its budgets and administration of its assets.^{1,2,3,4,5.}

The Veterinary Faculty, just like other UCM Centres, has 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 University's Central Services and the Faculty only receives these services and goods.

As a result, two main types of expenditure can be distinguished in the Veterinary Faculty:

1. **Expenditure directly managed by the Faculty.**
Funded with revenues included in Sections B, D and E of the Table 3.2.1.
2. **Expenditure managed by the Central Services of the Rectorate.**
Funded with revenues in Sections A and C of the Income Table 3.2.1.

The execution and management of the Budget is carried out in accordance with :

¹ LOU 6/2001, dated 21 December.

² General Budget Law. *Ley General Presupuestaria* 47/2003 dated 26 November.

³ UCM Estatutes, approved in Decree 58/2003, dated 8 May.

⁴ Law 9/1990 dated 8 November, regulating Community of Madrid Treasury.

⁵ Economic and Financial Management Regulation, *Complutense* University of Madrid.

3.1. Expenditure

Table 3.1.1. Annual expenditure of the establishment

<u>Calendar Year 2004</u>		Euros
A. <u>Personnel</u>		
A.1. teaching staff		9,633,257.31
A.2. support staff		2,775,279.79
A.3. research staff		1,504,006.55
A.4. interns HCV		100,968
TOTAL for A		14,013,511.65
B. <u>Operating costs</u>		
B.1. utilities		1,172,270.57
B.2. expenditure relating specifically to teaching		1,329,237.77
B.3. expenditure relating specifically to research		4,637,663.57
B.4. general operations (excluding the above)		144,448.56
TOTAL for B		7,283,620.47
C. <u>Equipment</u>		
C.1. teaching		348,895.37
C.2. research		1,121,025.68
C.3. general (or common) equipment		1,771,859.33
TOTAL for C		3,241,780.38
D. <u>Maintenance of buildings</u>		
D.1. maintenance of buildings		197,816.56
E. <u>TOTAL EXPENDITURE</u>		24,736,729.06

Table 3.1.2: Cost of veterinary training

1. Annual direct cost of training a student

$$\frac{a1 + a2 + b2 + c1}{\text{number of students}} =$$

$$\frac{14,086,670.24 \text{ euros}}{1.060} = \mathbf{13,289.31 \text{ euros}}$$

2. Direct cost of training for a diploma

$$\begin{array}{rclclcl} \text{Annual direct cost of training a student} & \times & \text{Average duration of studies} & = & \\ 13,289.31 & \times & 5.9 & = & \mathbf{78,406.93 \text{ euros}} \end{array}$$

3.2. Revenues

Table 3.2.1: Annual revenues of the establishment

<u>Calendar Year 2004</u>		Euros
A. Revenue from the State or public authorities		16,153,100.14
B. Revenue from private bodies		7,773
C. Revenue from research		6,734,397.26
D. Revenue earned and retained by the establishment		
D.1. registration fees from students		1,016,093.40
D.2. revenue from continuing education		96,872.24
D.3. revenue from clinical activities		526,508.29
D.4. revenue from diagnostic activities		177,384.73
E. Revenue from other sources		
E.1. Renting of facilities		24,600
F. TOTAL REVENUE FROM ALL SOURCES		24,736,729.06

Note on the Table of Revenues:

Revenues outlined in section B are low since in this University there is no system of private donations intended for teaching purposes. In contrast, research projects may be funded by the private sector; this income is included in section C.

Table 3.2.2: Changes in public funding

Give the story of revenue from the state or public authorities (Item a from Table 3.2.1) for the previous 5 years (in Euros)

Year	2004	2003	2002	2001	2000
Revenue	15,731,507.73	13,836,182.82	13,627,932.46	13,274,690.88	12,986,709.12

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

☐ Clinical work (H.C.V.)	10%
☐ Diagnostic / External Services (Art. 83 LOU)	10%
☐ Research Grants/ Projects	15%
☐ UCM Postgraduate Courses (Continuing Education))	20%
☐ Others	10%

Note on the Table of Percentages:

The UCM-Rectorate subtracts the percentage detailed from the total income. The rest is assigned to the Faculty , HCV, or Coordinator of the Research Project/Service, either for specific ends use or for managing as it chooses. The Faculty does not retain any additional income.

Outline how the allocation of funding to the establishment is determined, and by what body.

If the allocation of funds, or any significant proportion of it, is linked to a particular factor (e.g. student numbers, research output), please describe this.

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

Outline how the allocation of funds within the establishment is decided.

Describe briefly the mechanism(s) for funding capital expenditure (e.g. building work, major items of equipment,) and how decisions are taken on this.

The budget of the UCM is annual , per calendar year (1 January to 31 December), not per academic year (1 October to 30 September).

Initial approval (project stage) is given by the Governing Council of the UCM which then submits it for final approval to the UCM's Social Council .

In 2004 the budget of the UCM was **464,044,292.23 euros**, with the estimated total costs financed from the following income sources:

- A. **“Fees, public prices and other income” : 18.34 %**
Income from fees and public prices is decided by the *Autonomous Community of Madrid*.
- B. **“Ordinary transfers ” (to finance ordinary expenses): 69.66 %**
- C. **“Capital transfers” (to finance capital and investment expenditure): 9.01 %.**
- D. **“Others”: 2.99 %**

It is important to point out that of the total transfers (B+C=78.67%) only 0.1% is from private sector companies, and that therefore it can be asserted without any doubt that the Complutense University of Madrid depends almost totally on public funding.

As said before, it is important to distinguish between those areas which are managed and paid directly the Faculty, and the ones managed by the Rectorate:

1. ORDINARY EXPENDITURE : Direct management by the Faculty

The Faculty receives from the Chancellery 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).

This annual endowment is calculated by means of a model in force since the year 2002 , which is based on the following criteria and percentages:

- ❖ An equal amount is given to each Centre within the UCM, which adds up to 31% of the total amount available for distribution.
- ❖ 4% of the total amount is distributed according to the surface area of the centres, evaluated on an ascending scale.
- ❖ 40% of the total amount to be assigned is distributed proportionally to the different Centres according to the number of teaching credits taught. What is considered here is the income obtained from the courses in which students have registered, multiplied by the price of the credit depending on the experimental grading of each course, as laid down in the annual *Decreto del Consejo de Gobierno de la Comunidad de Madrid*. The Veterinary Degree has the maximum experimental grading (1), and the ratio between it and studies considered at the lowest grade (6) , is $1.56213 / 1$. The result is that for the Veterinary degree courses the Faculty receives 1.56 times more per credit than other degree courses where the experimental grade is 6 (e.g. a Humanities degree course.)
- ❖ 25% of the total amount assigned is distributed in proportion to the teaching credits offered by each Centre.

Based on these criteria, the annual amount for *Ordinary Expenditure* received by the Faculty in 2004 was 759,675.40 €.

From the total annual endowment mentioned above, the Rectorate discounts at source the amount corresponding to the central acquisition of Journals for the Library, so that the real amount received by the Faculty of Veterinary Science in 2004 was **703,506.82 €** . After discounting the amount corresponding to the Degree of Food Science and Technology, the total available for the Degree in Veterinary Science was 640,393.44 which in turn and on the agreement of the Faculty Council , was apportioned as follows:

- ❖ **Centralized Faculty Services (14.43 % : 92,408.77 euros):**
 - Cooperation for development (0,7%).
 - Library.
 - Isotope Laboratory.
 - Extramural Practice programme (Placements)
 - Students Associations.

❖ **General Faculty Services (21.39 % : 136,980.17 euros):**

- Classroom maintenance.
- General teaching equipment.
- Vehicles.
- Dean's office .

❖ **Departments (64.18 % : 411,004.51 euros)**

This amount is distributed among the different departments according to the following criteria:

1. **35 %** (160,418.90 €) is distributed assigning the **same amount** to each Department and a third of this to the Departmental Section.
2. **21 %** (96,251.34 €) is distributed according to the number of **theoretical teaching credits** delivered by each Department and Departmental Section.
3. **44 %** (201,669.46 €) is distributed according to the number of **practical teaching credits** delivered by each Department and Departmental Section.

2. CAPITAL EXPENDITURE : Centralised management by the Rectorate:

The Rectorate decides which infrastructure projects can be carried out and charged to the UCM's Annual Investment Plan, as well as repair, maintenance or safety tasks which have to be undertaken because they are strictly necessary or urgent. A prioritised proposal of works needed by the Faculty is sent to the UCM Rectorate on an annual basis. Final decisions are taken after evaluation of all UCM-Centres requests depending on budget availability.

The Rectorate also decides which investments can be included in the programs funded by the different Government Departments, such as for example the 'program-contract' with the Madrid Autonomous Community, the investments with FEDER funds from the EU, etc.

In this context the following works were carried out in our Faculty during 2004:

- | | |
|--|----------------|
| ▪ Improvement of gas supply in laboratories | 23,839.33 € |
| ▪ Staff dining room | 43,804.79 € |
| ▪ Remodelling of Facilities,
Department of Animal Health:
(first annual payment) | 1,560,425.14 € |
| ▪ Power Supply,
Department of Food Science and Technology | 143,790.07 € |

- ❖ Concerning the HCV, the University pays some utilities related costs (like electricity and water consumption, heating and cleaning services) and the salaries of the support staff originally budgeted when the HCV was opened. Apart from that, the HCV does not receive any specific grant from the University; all other expenses (including equipment purchase and maintenance, salaries of interns or additional support staff, remodelling of the premises, etc) are paid from the clinical income.

Please indicate whether students:

- Pay tuition/registration fees : YES
- How much these are : 13.79 euros per teaching credit
- How they are decided : They are established by the Autonomous Community of Madrid
- How the funds are distributed: see text

2. COMMENTS

Teaching establishments never have enough finance. Please comment on any of the “Guidelines and Requirements” that are particularly difficult to fulfil in the present financial situation.

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

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

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

- ❖ The level of funding of the Faculty is low to cover day to day activity, but where it is clearly insufficient is in the items devoted to investment. The yearly assigned amount hardly covers running costs (*ordinary expenses*: telephones, office supplies, vehicle costs, laboratory materials, etc.) and the surplus available for inventory material (audiovisual equipment, vehicles, furniture, etc) is very small. Budget available for capital expenditure is clearly insufficient, specially in University with a long history like the UCM, where many buildings and infrastructures need remodelling works.

- ❖ It is well known that the costs of the Veterinary Degree are very high due to the large amount of practical training offered. Although this Faculty has been classified at the highest experimental grade, and for this reason receives more teaching funds than other less experimental Faculties, we consider that this is not sufficient, and that there should be additional funding to cover the high cost of the practical work. The example of the UCM's Faculty of Medicine could be cited here. This Faculty also holds the maximum experimental grade because of its high practice load, but it has additional funding coming from the Public Health System. We consider that the UCM or other Public Body should contribute to a greater degree to the funding of this Faculty.
- ❖ The degree of autonomy of the establishment in financial matters is really low. Although it is true that the management of public funds is laborious, the real obstacle is the decision making process, as there are too many intervening factors/ agents involved and this slows the process down.
- ❖ The only income we can consider as the Faculty's own comes from renting of facilities (classrooms and others). Other income, such as that from research projects or *Complutense* Postgraduate Courses (Continuing Education) is managed by the project or course director to cover their own requirements and not for the general requirements of the Faculty.
- ❖ Researchers and Coordinators of Diagnostic/External Services think that the present percentage retained by the University should be lowered, specially in the case of research projects where it climbs up to 15% (15% of the 2004 Research Revenues of our Faculty accounts for over one million euros).

3. SUGGESTIONS

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

The situation is not satisfactory and the possibility of any real change is small since most of the UCM funding comes from Public Sources. A positive feature could be to increase incentives to stimulate initiatives which could generate more income for our University. We could mention research projects (where we are in a very good position within our University), collaboration with companies and entities, in both the public and the private sector, continuing education, provision of direct services to the public, etc.

In any case, a higher degree of autonomy for expenditure would be desirable.



Chapter 4: CURRICULUM

CHAPTER 4. CURRICULUM

1. FACTUAL INFORMATION

Indicate whether there is defined national curriculum and (if applicable) how and by what body decisions are taken on this.
Describe the degree of freedom that the establishment has to charge the curriculum.
Outline how decisions on curriculum matters and course content are taken within the establishment..
Outline how decisions are taken on the allocation of hours between the various subjects and on the balance between theoretical and practical teaching.

Legislation on the curriculum leading to official University Degrees in Spain is based on Royal Decree 1497/1987, dated 27 November which states the general common guidelines to be applied to all curricula leading to any official university degree, and on the University Organic Law (LOU) dated 21 December 2001. The Royal Decree 1384/1991, dated 30 August states the general guidelines referring specifically to the curriculum leading to the official University Degree in Veterinary Science, in accordance to what is stated in European Community Directive 78/1027/EEC, dated 18 December 1978.

The common general curriculum guidelines state that all university teaching will be structured in two cycles. The first cycle includes basic teaching and general training and the second cycle is devoted to a pre-specialisation and preparation for professional activity. The study load of the different subjects includes between 60 and 90 credits (1 credit equals 10 teaching hours) per academic year. The curriculum content in both the first and the second cycles is arranged to distinguish between core subjects (which must be included in all curricula), electives (freely established by each university), and optional subjects (chosen by the student from those offered by the University for the flexible configuration of the curriculum.) The study load in credits for the core subject group is a minimum 30 % and maximum 45% in the first cycle and a minimum 25% and maximum 40 % in the second cycle. The percentage of elective credits must not be less than 10% of the total study load. The general guidelines specific to veterinary studies state that the teaching load will range between 20 and 30 hours per week, including practical teaching sessions. A minimum of 300 credits must be obtained for the degree to be awarded.

The current legislation allows Universities a certain amount of flexibility to adapt the distribution of credits as needed. The total study load of credits may vary within the minimum and maximum permitted total in different Veterinary curricula. The number of credits assigned to core, elective and optional subjects may also vary although the legally established percentages for each of them must be maintained. In addition, the number of subjects used to teach the content of the core materials may vary according to the needs of each University as well as the number of elective and optional subjects.

The current curriculum in the Veterinary Faculty of the *Complutense* University of Madrid (UCM), approved on 13 November 1997 in line with the national common and specific general guidelines and directive 78/1027/EEC, consists of two cycles, the first lasting two years and the second three years. The total study load is 3950 hours of which 82.9% (3275 hours) correspond to core subjects, 6.8% (270 hours) to elective subjects and 10.3% (405 hours) to optional subjects. Four hundred hours of the total correspond to pre-professional practice (external placements) which can be carried out within or outside term time during the 4th and 5th years. The first cycle consists of 1400 hours (35%) and the second of 2550 hours (65%). 2125 of the total 3950 hours correspond to theory and 1825 to practice (ratio 1.2: 1). In the case of elective and optional subjects the ratio of theory to practice is 1:1.

As a result of the process of construction and adaptation to the European Space for Higher Education, initiated with the Bologna Declaration of 1999, the Spanish Ministry of Education and Science published in the Royal Decree 55/2005, dated 21 January, the new structure of university teaching and the rules regulating official University studies. These regulations state that the degree must comprise between 180 and 240 total ECTS credits and that the core training content must be between a minimum of 50% and a maximum of 75% of the total number of credits.

Spanish law establishes the mechanisms for creation, modification and homologation of official curricula and degrees. Articles 34 and 35 of the LOU, article 158 of the statutes of the UCM and the Royal Decree 49/2004, dated 19 January, state that the Governing Council of the University, of its own accord or on the proposal of the Academic Board, with the prior report of the appropriate Departments in their own areas, will draw up and approve the curricula. Once a curriculum has been approved by the Academic Board and by the Governing Council of the University, it is sent to the Autonomous Community Government to report on its

financial implications and on the availability of means and appropriate resources to action it. The University then forwards the curriculum proposal to the National University Coordinating Committee, along with the Autonomous Community's report. Once the curriculum has been approved by the National University Coordinating Committee it is sent to the General Directorate of Universities in the Ministry of Education for the homologation of the degree which is then approved by the Council of Ministers. Modifications to a curriculum, which affect more than 10% of the credits related to the core training content, will imply the extinction of the current curriculum and it will consequently be considered as a new curriculum which must be submitted to the University Coordinating Committee to go through the whole homologation process. If the modification affects 10% or less of the credits in core subjects or only affects the content established by the University at its own discretion (electives), the University Coordinating Committee must be informed and will decide whether the proposed modifications can proceed.

4.1. CURRICULUM FOLLOWED BY ALL STUDENTS

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

	Hours of training						Total
	Lectures	Practical work	Supervised work	Clinical work	Extramural pre-professional practice ¹	Other	
1 st year	285	201	39				525
2 nd year	360	216	11			18 ^a	605
3 rd year	375	97	73	57		23 ^a	625
4 th year	390	135	25	146	200	4 ^a	900
5 th year	360	105	27	104	200	24 ^a	820
6 th year	N.A.	N.A.	N.A.	N.A.		N.A.	N.A.
Total	1770	754	175	307	400	69	3475

^a Seminars (discussion of scientific papers, solving cases, etc)

N.A. = Not applicable

¹ Keeping in mind that pre-professional extramural practices can fall into different categories depending on their nature (clinical or others), we have considered useful the addition of a column focused on showing the total hours spent in this sort of practical work.

Table 4.1.2. Yearly curriculum studies

Year of the course: 1

Subject	Hours of training				Total
	Lectures	Practical work	Supervised work	Clinical work	
Anatomy I	60	55			115
Biology	30	30			60
Biochemistry	50	40			90
Ethology, animal protection and ethnology	30		25		55
Physics	25	20			45
Genetics	35	16	14		65
Mathematics	30	20			50
Chemistry	25	20			45
Total	285	201	39		525

Table 4.1.2. Yearly curriculum studies**Year of the course: 2**

Subject	Hours of training					Total
	Lectures	Practical work	Supervised work	Clinical work	Other	
Agronomy and Agricultural Economics	30	16			14 ^a	60
Anatomy II	45	40				85
Cytology and histology	55	40				95
Epidemiology	30		5			35
Animal physiology	80	55				135
Immunology	30	13	2			45
Microbiology	60	26	4			90
Parasitology	30	26			4 ^a	60
Total	360	216	11		18 ^a	605

^a Seminars (discussion of scientific papers, solving cases, etc)**Table 4.1.2. Yearly curriculum studies****Year of the course: 3**

Subject	Hours of training					Total
	Lectures	Practical work	Supervised work	Clinical work	Other	
Animal breeding	60	18	12			90
Pharmacology, pharmacy and therapeutics	60	26	14			100
Animal nutrition	75	6	21	2	1 ^a	105
General pathology	30	30				60
Physiopathology	60	12	8			80
Animal production and veterinary hygiene	75	5	18	10	22 ^a	130
Propedeutics	15			45		60
Total	375	97	73	57	23 ^a	625

^a Seminars (discussion of scientific papers, solving cases, etc)

Table 4.1.2. Yearly curriculum studies**Year of the course: 4**

Subject	Hours of training						Total
	Lectures	Practical work	Supervised work	Clinical work	Extramural pre-professional practice	Other	
Infectious diseases	90	20	10	20			140
Parasitic diseases	60	20		26		4 ^a	110
Special pathology	60	50					110
Internal Medicine	90			80			170
Radiology	30			20			50
Food technology	60	45	15				120
Extramural pre-professional practice					200		200
Total	390	135	25	146	200	4 ^a	900

^a Seminars (discussion of scientific papers, solving cases, etc)

Table 4.1.2. Yearly curriculum studies**Year of the course: 5**

	Hours of training						
Subject	Lectures	Practical work	Supervised work	Clinical work	Extramural pre-professional practice	Other	Total
Food Hygiene, inspection and control	90	41	19				150
Surgery	60	4		76			140
Preventive medicine and sanitary policy	45		8			12 ^a	65
Obstetrics and reproduction	90	20		28		12 ^a	150
Toxicology	45	30					75
Deontology, legal medicine and legislation	30	10					40
Extramural pre-professional practice					200		200
Total	360	105	27	104	200	24 ^a	820

^a Seminars (discussion of scientific papers, solving cases, etc)

Table 4.1.3. Number of curriculum hours taken by every student in EU-listed subjects

4.1.3 A.	Subject Basic subjects	Hours in course					Total
		Lectures	Practical work	Supervised work	Clinical work	Other	
	Anatomy (incl. histology and embryology)	160	135				295
	Biochemistry and molecular biology	50	40				90
	Biology (incl. cell biology)	30	30				60
	Biophysics	25	20				45
	Biostatistics	30	20				50
	Chemistry	25	20				45
	Epidemiology	30		5			35
	Genetics	35	16	14			65
	Immunology	30	13	2			45
	Microbiology	60	26	4			90
	Parasitology	30	26		4		60
	Pathology (macroscopic & microscopic)	90	80				170
	Pharmacy ¹	5	5				10
	Pharmacology ¹	30	10	5			45
	Physiology	80	55				135
	Physiopathology	60					60
	Scientific and technical information and documentation methods ²						
	Toxicology (incl. environmental pollution)	45	30				75
	Total	815	526	30	4		1375

¹ Pharmacy and pharmacology are taught together within the subject called "*Pharmacology, pharmacy and therapeutics*". About 10% of the total hours of this subject correspond to pharmacy, 45% to pharmacology and 45% to therapeutics.

² This subject is taught in several courses as specific parts of each one.

Table 4.1.3. Number of curriculum hours taken by every student in EU-listed subjects

B.	Subject Animal Production	Hours in course					Total
		Lectures	Practical work	Supervised work	Clinical work	Other	
	Agronomy	15	16				31
	Animal behaviour (incl. behavioural disorders) ³	11		6			17
	Animal husbandry (incl. livestock production systems)	149	23	45	10	22	249
	Animal nutrition and feeding	75	6	21	2	1	105
	Animal protection and welfare ³	5		4			9
	Environmental protection ⁴						
	Preventive veterinary medicine (incl. health monitoring programmes)	45		8		12	65
	Reproduction (incl. artificial breeding methods) ⁵	15	5	2	10		32
	Rural economics	15				14	29
	Total	330	50	86	22	49	537

³ Ethology (animal behaviour) and animal welfare are taught within the same subject (*Ethology, animal protection and ethnology*). Approximately, 31% of this subject (55h) is devoted to ethology, 16% to animal protection and welfare, and 33% to ethnology. Additional contents of animal protection and welfare are included in animal husbandry and legal veterinary and veterinary legislation. The number of hours listed in the table represents an approximation.

⁴ Course contents corresponding to environmental protection are split among several subjects, including *Animal Production* and *Toxicology*. The number of hours listed in the table represents an approximation.

⁵ Course contents corresponding to reproduction (incl. artificial breeding methods) are split among several subjects, including *Physiology*, *Animal Production* and *Obstetrics and Reproduction*.

Table 4.1.3. Number of curriculum hours taken by every student in EU-listed subjects

C.	Subject Clinical subjects	Hours in course					Total
		Lectures	Practical work	Supervised work	Clinical work	Other	
	Anaesthetics	5			10		15
	Clinical examination and diagnosis and laboratory diagnostic methods ⁶	25	12	8	35		80
	Clinical medicine	240	70	10	90	10	420
	Diagnostic imaging	30			20		50
	Obstetrics ⁷	75	15		28		118
	Reproductive disorders ⁷						
	State veterinary medicine, zoonoses, public health and forensic medicine ⁸						
	Surgery	55	4		66		125
	Therapeutics	25	11	9			45
	Total	455	112	27	249	10	853

⁶ The hours listed in this item (clinical examination and diagnosis and laboratory diagnostic methods) correspond to our subject of *Propedeutics* plus the hours corresponding to practical work and supervised work of *Physiopathology*. Diagnostic histopathology is listed under *Pathology*. In this item we are not including diagnostic methods of infectious and parasitic diseases, microbiology, parasitic diseases and immunology which are included within those subjects.

⁷ All contents belonging to obstetrics and reproductive disorders are taught in our subject *Obstetrics and Reproduction*. The number of hours listed under *Obstetrics* corresponds to all these contents as a whole.

⁸ This subject is taught in several subjects (*Infectious and Parasitic diseases, Food Hygiene, Toxicology, Legal Veterinary, Special Pathology*) as specific parts of each one.

Table 4.1.3. Number of curriculum hours taken by every student in EU-listed subjects

D.	Subject Food Hygiene	Hours in course					Total
		Lectures	Practical work	Supervised work	Clinical work	Other	
	Certification of food production units ⁹						
	Food certification ⁹						
	Food hygiene and food quality (incl. legislation) ⁹	90	41	19			150
	Food inspection, particularly food of animal origin ⁹						
	Food science and technology	60	45	15			120
	Total	150	86	34			270

⁹ All contents belonging to certification of food production units, food certification, food hygiene and food quality, food inspection, etc. are taught in our subject *Food Hygiene, Inspection and Control*. Thus, the numbers of hours of all those contents are listed all together. This subject also includes slaughterhouse practice.

Table 4.1.3. Number of curriculum hours taken by every student in EU-listed subjects

E.	Subject Professional knowledge	Hours in course					Total
		Lectures	Practical work	Supervised work	Clinical work	Pre-professional practice	
	Pre-professional practice					400	400
	Practice management						
	Professional ethics ¹⁰	15	5				20
	Veterinary certification and report writing ¹¹						
	Veterinary legislation ¹⁰	15	5				20
	Total	30	10			400	440

¹⁰ Veterinary ethics and legislation are taught under “*Deontology, legal veterinary and legislation*”, half of this subject is devoted to ethics and the other half to legal veterinary and legislation. Specific legislation related to food, infectious diseases or parasitic diseases is taught in the corresponding subject.

¹¹ These contents are split in several subjects among the curriculum.

4.2. ELECTIVE SUBJECTS

Describe how and when students are allowed to select elective subjects, and the number of hours they have to take. Is there any limitation to their freedom of choice?

As indicated in “Factual information”, students obligatorily have to take 270 hours of elective subjects, 90 hours of them during the first cycle (1st and 2nd year) and 180 hours during the second cycle (3rd, 4th and 5th years).

First cycle elective subjects are mainly related to basic veterinary subjects, and those belonging to the second cycle are aimed to expand knowledge and get specialisation in more applied areas, as well as to serve as a pre-professional introduction. Students can freely choose among the elective subjects offered in each cycle.

Although there are no specialities defined in the curriculum, students have usually a clear orientation towards one of the main Veterinary Graduate action fields, namely Food Hygiene and Technology, Animal Production, Animal Medicine and Surgery, Public and Animal Health, and Research, and they can use their selection of electives to build up a specialisation track in one of the aforementioned areas.

In Table 4.2 elective subjects are divided in four groups according to these potential tracks: 1) Clinical subjects, 2) Animal production and population medicine, 3) Food Science, and 4) Basics and Research subjects in veterinary science. Usually the number of elective subjects offered within each of those tracks is sufficient to complete the obligatory 270 hours, so that students can fulfil their number of elective credits with subjects related to their area of interest.

Table 4.2. Courses organised as elective subjects						
Elective group 1: Clinical subjects	Hours in course					
Courses within elective	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Genetics applied to Clinics	25		4	12	4	45
Anaesthesia, Emergency and Intensive Care Medicine	20			25		45
Large Animal Special Surgery	20	5		20		45
Small Animal Special Surgery	20			25		45
Exotic Animal and Wildlife Clinical Medicine	20		5	20		45
Equine Clinical Medicine	20		7	12	6	45
Small Animal Clinical Medicine	20			15	10	45
Exotic Animal and Wildlife Therapeutics	25		11	9		45
Total	170	5	27	138	20	360

Table 4.2. Courses organised as elective subjects						
Elective group 2: Animal Production and Population Medicine	Hours in course					
Courses within elective	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Aquatic Animals Identification and Biology	25	20				45
Animal Genomics and its Applications	20	4	21			45
Environmental Impact of Agricultural Practice	20	12	1		12	45
Ictiopathology	25	10			10	45
Management of Livestock Facilities	25		10		10	45
Ruminant Production Medicine	20	25				45
Swine Production Medicine	20				25	45
Agricultural Policy	25		20			45
Avian Production and Pathology	20	9	8	8		45
Companion and Production Animal Food Rationing	20	12	4		9	45
Zoonoses and Public Health	25	20				45
Vaccines in Animal Medicine	25	10	5		5	45
Total	270	122	69	8	71	540

Table 4.2. Courses organised as elective subjects						
Elective group 3: Food Science	Hours in course					
Courses within elective	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Sanitary Control of Food Industries and Establishments.	15		30			45
Food Microbiology	30	15				45
Meat and Fish Products.	25	20				45
Dairy products	25	20				45
Total	95	55	30			180

Table 4.2. Courses organised as elective subjects						
Elective group 4: Basic Veterinary and Science Research subjects	Hours in course					
Courses within elective	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Experimentation Animals. Basis	20		25			45
Experimentation Animals. Extension	20	15		10		45
Applied Molecular Biology	25	15	5			45
Exotic Animal Anatomy	25	17	3			45
Basis and Analysis of Toxicological Risks	30	15				45
Animal Tissue Special Biochemistry	25	20				45
Veterinary History	30		15			45
Applied Informatics	15	24	6			45
Applied Instrumental Techniques	20	25				45
Total	210	131	54	10		405

4.3. OPTIONAL SUBJECTS

Optional subjects are of a varied nature and their aim is to complete the student training in those areas of his/ her interest. As stated before in “Factual Information”, students have to attend 405 hours under optional subjects (which represent a 10.3 % of the total syllabus hours); 180 hours have to be taken during the first cycle and 225 during the second cycle.

As detailed in Table 4.3., the Establishment offers 17 optional subjects (accounting for 810 hours) related to Clinical subjects, Animal production and population medicine, Food Science, and Basic and research subjects in veterinary science.

Table 4.3: Optional subjects in the veterinary curriculum.							
		Hours in course					
Year offered	Subject	Lectures	Practical work	Super-vised work	Clinical work	Other	Total
All	Domestic Animals Congenital Malformations	30	15				45
All	Physical Bases of Diagnostic Imaging Techniques	25	20				45
All	Environmental Chemical Contaminants	25	20				45
All	Introduction to Food Chemistry	30	15				45
All	Radiobiology: Radiotherapy Basis	25	20				45
All	Animal Biodiversity: Analysis and Management.	25	20				45
All	Pasture science and forage conservation.	25	16			4	45
All	Dog and Cat Feeding and Nutrition.	20	4	21			45
All	Sustainable Production and Resource Conservation.	30		5		10	45
All	Forage Quality and Evaluation.	20	25				45
All	Ecology, Conservation and Environmental Resources sustainability.	25	10	10			45
All	Animal endocrinology I	20		25			45
All	Animal endocrinology II	20			25		45
All	Veterinary Clinical Pharmacology	20	10	15			45
All	Veterinary Clinical Toxicology	25	20				45
All	Clinical Microbiology	25	13	7			45
All	Hospitalisation, Emergency and Intensive Care in Equine Medicine.	27			63		90
Total		417	208	83	88	14	810

4.4. OBLIGATORY EXTRAMURAL WORK.

Indicate the guidelines pertaining to this activity, and the manner by which it is assessed.

The subject called *Placements (Estancias)* refers to Pre-professional Extramural practices and figures in the current Veterinary Sciences curriculum as an obligatory core subject over a total of 400 hours (200+200).

This subject implies that the students will be placed in a Centre/Organization other than the Faculty to learn and work in any of the knowledge areas linked to Veterinary Studies (BOE 8/12/97). The aim of this placement is for the student to be exposed to professional reality in a non-university environment.

This extramural work takes place during the last two years of the degree, 200 hours in 4th year and another 200 hours in 5th year.

Each student has an internal tutor (who is always a teacher from the Veterinary Faculty) and an external tutor (who is the person responsible for his or her training in the centre where the placement takes place). Throughout the placement, the internal and external tutors will make periodical contact to ensure ongoing monitoring of the student's progress.

The final qualification obtained is decided by a Committee appointed by the Faculty Council (called *Placements Committee*), which includes: The Dean, the Vice-Dean for Students, the Vice-Secretary in charge of the discipline, and five Faculty teachers from different subject areas. This Committee will award the final mark based on the following factors:

1. Evaluation report by the external tutor.
2. Evaluation by the internal tutor of the report the student must present at the end of the extramural work, including a description of the Centre and the tasks carried out.
3. Any other relevant information about the placement, which the committee receives or collects.

As this is an obligatory core subject, the Faculty is responsible for enabling the students to complete it by making lists available with collaborating Centres, Companies and Clinics, which they can apply to. Among the Centres on offer there is a large number of pet-clinics (more than 150, devoted to dogs, cats and exotic animals) and also, to a lesser extent, Food Industries, Research Centres, Livestock Industries, Wildlife Rehabilitation Centres, Zoos and Animal Food producers (See Annex-I-Placements for more information).

It is the duty of the Faculty to confirm that the Centres on offer are of a sufficient quality to guarantee that the student's learning process will be adequately enhanced in them.

Table 4.4. Obligatory extramural work that students must undertake as part of their course.		
Nature of Work	Minimum period	Year of the course in which work is carried out
Pre professional practice (full time)	200h	4
Pre professional practice (full time)	200h	5
Total	400h	

4.5. RATIOS

We have calculated two ratios, considering different factors. Ratios included under the first section are related only to core subjects, and the ones included in the second section are referred to core subjects plus electives. We have decided to show ratios including electives because those are an important element of our syllabus; our students are obliged to complete 270 hours in elective subjects and thus they can also be considered compulsory in some way. In addition, students use those elective subjects to build up their self-chosen specialisation track (see tables 4.2).

1. Core subject ratios:

A					
	Theoretical training	=	1,770	=	1
	Practical and clinical training ¹		1,705		0.96

¹ Pre-professional practice is included since it is a core subject. If we exclude extramural practice, the ratio "Practical and clinical versus theoretical" will change from 1,770/1,705 (1:0.96) to 1,770/1,305 (1:0.74).

B					
	Clinical training ¹	=	707	=	1
	Theoretical and practical training		2,768		3.9

¹ Pre-professional practice is included since approximately 90% of our students spend that training doing clinical work. If we exclude extramural clinical work, the ratio "Theoretical and practical versus clinical" will change from 707/2,768 (1:3.9) to 307/2,768 (1:9.0).

2. Core plus elective subject ratio (only for the clinical track):

A					
	Theoretical training	=	1,905	=	1
	Practical and clinical training ¹		1,840		0.96

¹ Pre-professional practice is included. If we exclude extramural clinical training, the ratio "Practical and clinical versus theoretical" will change from 1,905/1,840 (1:0.96) to 1,905/1,440 (1:0.76).

B					
	Clinical training ¹	=	780	=	1
	Theoretical and practical training		2,968		3.8

¹ Pre-professional practice is included. If we exclude extramural clinical training, the ratio "Theoretical and practical versus clinical" will change from 780/2,968 (1:3.8) to 380/2,968 (1:7.8).

4.6. FURTHER INFORMATION ON THE CURRICULUM

Provide a short description of the teaching programme in (see Table 4.1.3):

- A. Basic subjects
- B. Animal production
- C. Clinical subjects
- D. Food hygiene
- E. Professional knowledge

State the parts of the programme that must be attended obligatorily by the students. How is the attendance verified?

Attendance to all practical activities related is compulsory. Verification of attendance is usually done by signing on a list. In most cases, more than one unjustified failure to attend to a practical session implies that the student fails to pass the subject. For theoretical lectures, there is no formal arrangement to verify attendance of the students.

A.	Basic subjects	Contents
	Anatomy (incl. histology and embryology)	General embryology and organogenesis of domestic animals. Embryo manipulation. Congenital abnormalities. Systematic topographic anatomy and compared anatomy of the species of veterinary interest: cattle, horse, pig, dog, cat and rabbit. Locomotor apparatus, cardiovascular system, lymphoid system, haematopoietic and lymphopoietic organs. Splachnology: respiratory and digestive apparatus. Urogenital system, nervous system, sensory organs, skin and annexes. Avian anatomy. Structural and ultrastructural study of the cells, tissues and organs of the different domestic species.
	Biochemistry and molecular biology	Protein structure and function, enzymology. Nucleic acids. Molecular Biology, cell membrane. Bio molecule metabolism, metabolism integration.
	Biology (incl. cell biology)	Animal Biology: Fundaments, behavioural bases. Invertebrate Biology. Vertebrate Biology. Vegetal Biology, fundaments. Protista, Fungi, Plantae.
	Biophysics	Elasticity. Fluid mechanics. Thermodynamics. Waves and Oscillations. Radiations.
	Biostatistics	Matricial calculation, Probability theory, Descriptive statistics, Statistical inference, Correlation and Regression theories, Variance analysis, Hypothesis testing: parametric and non parametric tests.
	Chemistry	Chemical bonds. Chemical thermodynamics. Chemical kinetics. Chemical reactions in aqueous solution, Ion transference reactions. Organic chemistry: functional groups, reaction mechanisms, isometrics. Glucids, Lipids, Amino acids. Chemical environmental factors.
	Epidemiology	Illness frequency. Sampling. Diagnostic tests. Questionnaires. Descriptive epidemiological assays. Analytic epidemiological assays. Risk factors.
	Genetics	Fundamentals on genetic material transmission. Population Genetics. Identification and properties of genetic material, including replication ability, ARN and protein synthesis, Genomic regulation. Biotechnology.
	Immunology	Fundamentals of the immune response, its structure and function in the main animal species. Immune mechanisms against bacteria, viruses, fungus and tumours. Main immunopathological alterations. Basic techniques in immunological diagnoses. Understanding the usefulness of the immunological diagnostic laboratory. Results discuss.
	Microbiology	Morphology, Physiology, biochemistry, genetics, and taxonomy of illness related bacteria, fungus and viruses. Applications for industries, biotechnology and ecology.
	Parasitology	Morphology, bionomics, physiology, and systematic of the parasites affecting domestic animals. Parasite-host-environment relations.
	Pathology (macroscopic & microscopic)	Fundamentals of pathology, lesions of common diseases. Identification, description, interpretation and diagnosis of macroscopic and histologic lesions of the several systems and apparatus of domestic animals during the course of the diseases.

Pharmacy and Pharmacology	Pharmacokinetics. Pharmacodynamics. Pharmacology of the vegetative nervous system. Pharmacology of the central nervous system. Anaesthesia. Pain and inflammation pharmacology. Pharmacology of the digestive, respiratory, cardiovascular and renal systems. Pharmacology of the endocrine system. Infectious diseases chemotherapy. Immunomodulating and antineoplastic drugs.
Physiology	Complete description of organs and systems functionality. Medicine and Animal Production applied Physiology.
Physiopathology	Nutrition and metabolism Physiopathology, thermo regulative organs, systems and physiopathology of the major syndromes.
Scientific and technical information and documentation methods	These contents are included as parts of other subjects.
Toxicology (incl. environmental pollution)	Intoxication Aetiology and Treatment. Toxic kinetics, toxic dynamics. Toxicity bioassays. Environmental Toxicology. Drug Toxicology. Food Toxicology.

B.	Animal production	Contents
	Agronomy	Plant and environment. Grasslands and forage conservation. Crops and crop residues.
	Animal behaviour (incl. behavioural disorders)	Domestic Animal Ethograms. Morphology, Chronometry, Zoometry and Animal Identification.
	Animal husbandry (incl. livestock production systems)	Basic concepts in animal production. Technical basis for: swine production, poultry production, bovine production, ovine and caprine production, rabbit and equine production. Husbandry and management of domestic species. Milk production. Egg production. Meat production. Quantitative genetic selection, consanguinity and breeding, molecular genetics.
	Animal nutrition and feeding	Nutrition and feeding. Proteins, fats, and carbon hydrates: Digestion and metabolism. Minerals and vitamins. Nutritional evaluation of food. Nutritional needs in domestic species. Feeding for domestic species. Nutritional analytical methods. Rationing and feedstuff Formulation.
	Animal protection and welfare	Basic concepts in animal welfare and protection. Legal aspects.
	Environmental protection	These contents are included as parts of other subjects.
	Preventive veterinary medicine (incl. health monitoring programmes)	Preventive medicine programs. Basis on prevention, control and illness fight. Risks analysis. Biosecurity.
	Reproduction (incl. artificial breeding methods)	Physiological bases of the reproductive cycle of domestic animals. Estral cycles and its determination. Semen collection and artificial insemination. Oestrus synchronization. Embryo transfer. Pregnancy diagnosis.
	Rural economics	Introduction to the market economy (micro economy). Macro economy and economic policy.

C.	Clinical subjects	Contents
	Anaesthetics	Pre-anaesthetic evaluation and premedication: sedation, induction techniques. Intravenous maintenance. Inhalatory anaesthesia. Basic monitoring: invasive and non-invasive. Anaesthetic complications. Cardiac arrest and cardio respiratory resuscitation techniques.
	Clinical examination and diagnosis and laboratory diagnostic methods	Clinical examination. Direct and complementary clinical examination methods. Clinical examination of the distinct apparatus and systems, applied to the different domestic species. Clinical haematology, urine analysis, cytology techniques. Clinical microbiology, mycology, virology, Parasitology. Tests for the evaluation of organ functions. Clinical interpretation of laboratory results. Interpretation of ultrasound examination.
	Clinical medicine	Aetiology, pathogenics, synthomatology, diagnostic methods and procedures, prognostic, therapeutic and/or prophylactic measures for digestive diseases, neurological diseases, diseases of blood and haematopoietic organs, skin diseases, endocrine diseases, heart and cardiovascular system diseases, diseases of the urinary apparatus, ophthalmic conditions. Includes nutrition pathology, exotic animal medicine, and basic concepts in fluid therapy and oncology. Introduction to small and large animal practice.
	Diagnostic imaging	Nature of Radiology. X-Ray production, properties and ionization radiations action on live animals. Diagnostic and therapeutical applications. Radioprotection. Normal radiologic images in the healthy individual, radiological images of most common diseases of domestic animals, including orthopaedics. Mielography and ultrasound examination.
	Obstetrics	Delivery disorders. Maternal and foetal dystocias; diagnostic and treatments. Disorders of pregnancy, partum, post-partum and lactation. Neonatology
	Reproductive disorders	Reproductive disorders in various domestic species. Infertility. Pathologic anoestrus. Endometrial, cervical, vaginal and vulvar disorders. Abnormal pregnancies. Embryonic and foetal death. Male infertility and prostatic disorders.
	State veterinary medicine, zoonoses, public health and forensic medicine	Legal and forensic medicine. International animal trade. Animal health code. Risk analysis.
	Surgery	General surgery basis. Soft tissue surgery: skin and connective tissue. Pathology and surgery of the urinary apparatus. Principles of abdominal surgery and digestive apparatus surgical considerations. Vascular, thoracic and respiratory apparatus surgery. Basic traumathology and orthopaedics. Basic podiatry. Anaesthetics.
	Therapeutics	Systematic pharmacology therapy. Technical basis of drug dosage. Medical therapy. Antimicrobial, antifungal and antiparasitic therapy. Therapy of neoplastic diseases.

D. Food Hygiene	Contents
Certification of food production units Food certification Food hygiene and food quality (incl. legislation) Food inspection, particularly food of animal origin	Food and food quality. Hygienic aspects of food production, preservation and distribution. Legal aspects of food quality. Meat and derivatives hygiene, milk and dairy products hygiene, hygiene and bromatology of eggs, fish, seafood, vegetables and mushrooms. Slaughterhouse and food establishment inspection. Hazard Analysis and Critical Control Points.
Food science and technology	Components of food, functional properties, microbiology, spoilage. Food contaminants. Basic processes and operations in food technology. Quality control of food processing. Packaging and preservation of foods.

E. Professional knowledge	Contents
Practice management	Pre-professional practice
Professional ethics	Ethical veterinary code. Deontological code. Rights and obligations for professional veterinary practitioners. Responsibilities, organisation of veterinary profession.
Veterinary certification and report writing	These contents are split among other subjects.
Veterinary legislation	National and EU legislation affecting veterinary practice: Private practice, reportable diseases, welfare and animal protection, epidemics and disease control, food industries and Food Hygiene. Legal aspects of veterinary certification.

4.7. SPECIFIC INFORMATION ON THE PRACTICAL CLINICAL TRAINING

Give an outline description of how this is structured, in terms of:

- are such rotations a structured part of the training given to all undergraduate students?
- the total number of days or weeks of such rotations;
- the year(s) in which they occur;
- the different areas covered and the time spent in each area;
- whether attendance is full-time, for part of the day, and/or other (e.g. based on case needs);
- the activities and case responsibilities that students are expected to undertake.
- the group sizes in the clinical rotations

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

Outline the student involvement in the emergency (24-hr.) and hospitalisation activities of the clinics.

Specify student participation in the activities of the mobile clinic and indicate whether or not the hours spent in the mobile clinic are included in those in Tables 4.1.3., 4.2. or 4.3.

Clinical Rotations

4.7.a. The following clinical rotations belong to core subjects and thus have to be carried out by all students of the Veterinary Degree:

Table 4.7.a. Clinical Rotations related to core subjects					
ROTATIONS CORE SUBJECTS	Days / student	Hours / day	Year	Group size (Number Students / Teacher)	Average total hours / student
Internal Medicine	15	Small & Exotic animals : 4 Equines: 4-8* Cattle: 2-8*	4 th	Small & Exotic animals : 4 Equines: 2*-4 Cattle: 3*-8	80
Surgery	19	4-5	5 th	Surgery Room: 4 Outpatient consultation: 8	76
Obstetrics and Reproduction	6	5-8*	5 th	Small animals : 6 Equines: 15 Farm Animals: 3*	28
Infectious and Parasitic Diseases	10	4-5	4 th	6	46
Diagnostic Imaging	5	4	4 th	7	20
Total 11 weeks / student					
* Numbers corresponding to Rotations at Mobile Clinic					

4.7. b. Clinical Rotations in Elective subjects

In addition to rotations in core subjects, students enrolled in clinical electives carry out rotations listed in table 4.7.b. These additional rotations enable them to get deeper experience and skills in more specialised clinical areas. These clinical electives are taken by all students with a clinical orientation; thus, at the end of the degree, students will have completed a total of 18 weeks of intramural clinical rotations if they choose the “clinical track” (11 weeks in core-subjects and 7 additional weeks in clinical electives)

Table 4.7.b.
Clinical Rotations related to elective / optional subjects

ROTATIONS- ELECTIVE CLINICAL SUBJECTS	Days / student	Hours / day	Year	Group size (Number Students/Teacher)	Average total hours / student
SMALL ANIMAL CLINICAL MEDICINE	3	5	4 th or 5 th	5	15
EXOTIC CLINICAL MEDICINE	5	4	4 th or 5 th	4	20
EQUINE CLINICAL MEDICINE	4	3	4 th or 5 th	6	12
SMALL ANIMAL SPECIAL SURGERY	5	5	4 th or 5 th	6	25
LARGE ANIMAL SPECIAL SURGERY	4	5	4 th or 5 th	8	20
ANESTHESIA, EMERGENCIES AND INTENSIVE CARE MEDICINE	5	5	4 th or 5 th	6	25
HOSPITALISATION EMERGENCIES AND CRITICAL CARE EQUINE MEDICINE	7	9	4 th or 5 th	5	63
Total	7 weeks / student				

Description of the activities undertaken by the students in the different clinical rotations:

1. INTERNAL MEDICINE:

1.1. Small Animal Internal Medicine Consultations

Students carry out the patient's anamnesis and physical examination, they present the case to the clinician and together they elaborate a list of problems, differential diagnoses and working plan. After getting a Diagnosis (if possible) they design and apply the therapeutic plan always supervised by a clinician.

1.2. Large Animal Internal Medicine Rotations

Students are mostly faced with hospitalised patients (horses and cattle), participating with the clinician in rounds and collaborating in patient's examination and management (including performance of diagnostic tests, treatment administration, etc).

2. SURGERY:

2.1. Small and Large Animals Surgery clinic:

Students carry out the patient's examination, they discuss the differentials and complementary diagnostic tests that could be performed, and finally, always under the academic staff's supervision, they decide and administer the treatment.

2.2. Small and Large Animals Operating Rooms:

Students participate in surgeries' preparation (surgical material, room and patient). They assist the surgeon in complex surgeries, and they perform easier ones by themselves (ovariohysterectomy, etc). Students are responsible (always under the direction of the supervising clinician) for the immediate post-op care of surgery patients, until the animal is given back to the owner. If the patient requires hospitalisation after surgery, students can follow the therapeutical measures taken, administering treatments and taking active part in daily procedures, such as wound cleaning and dressing.

2.3. Small and Large Animal Anaesthesia:

Under the academic staff's supervision, students evaluate the preanaesthetic status of the patient, make rounds to discuss the best anaesthetic protocol to apply in each case, and they carry out all the complementary work until anaesthesia recovery (fluid therapy, local anaesthesia, intubations, anaesthetic monitoring, etc). They are also expected to be capable of monitoring the whole anaesthetic procedure (induction, maintenance and recovery), filling in the anaesthetic control sheets.

1. OBSTETRICS AND REPRODUCTION:

3.1 Small Animal Reproduction out patient clinic:

Students receive and perform physical examination of patients coming to the reproduction- clinic (pregnancy diagnosis follow-up, artificial insemination, reproductive diseases, etc) They discuss their findings with the clinician, perform diagnostic tests, and administer the treatment protocols if applicable.

3.2. Equine Reproduction (*Parada de Sementales*; Stallion Stud Service):

Students participate in all procedures related to mares' cubriton, learning the different ways of achieving equine successful reproduction (natural mount, assisted reproduction, pregnancy diagnosis follow-up, births and foal neonatology).

4. INFECTIOUS AND PARASITIC DISEASES:

Clinical rotations within these consultations show the students how to manage with infectious or parasitic diseases; they receive the patient, perform the physical examination, set out the possible differential diagnoses and discuss and administer the treatment regimens supervised by the clinician.

5. DIAGNOSTIC IMAGING:

During this rotation students participate in the Imaging Diagnostic Service. They collaborate in performing radiographic and ultrasound studies, discussing and interpreting results with the clinician.

Describe clinical exercises in which students are involved prior to the commencement of clinical rotations
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When students enrol in clinical rotations at the HCV, they should have passed the subject *Physiopathology* (3rd course), including the practical clinical pathology laboratory work, in which they learn to carry out and interpret several laboratory diagnostic tests. In addition, they should have passed *Clinical Propedeutics* (3rd course), where they perform physical examinations in healthy animals, related to all body systems, both in small and large animals.

In the aforementioned subject, students also learn indications and basic interpretation of some of the complementary diagnostic tools (radiology, endoscopy, electrocardiography, etc). They also should have passed the subject *Pharmacology, Pharmacy and Therapeutics* (3rd course), which gives them the necessary knowledge on medical treatments and protocols to apply these on the patients, and also the subject *Pathology* (3rd course), in which they learn to identify and describe tissue and organic lesions associated to different diseases.

Outline the student involvement in the emergency (24-hr) and hospitalisation activities of the clinics

All students carry out practicals at the Large Animal (horses and cattle) Hospitalisation Service, but not all of them at the Small Animal Hospitalisation Service.

As a general rule, students enrolled in core subjects do not carry out Emergency receiving, although they participate in the urgent care of hospitalised patients during the Large Animal Internal Medicine and Surgery rotations. However, all Internal students* (a total of 48 in the Small Animal Area, and 62 in the Large Animal Area), and those students enrolled in clinical elective subjects carry out practicals in the Emergency and Intensive Care Service, both in small pets and large animals. Thus, we can consider that most students with a clinical orientation in fact participate in ER-receiving and Hospitalisation, both in Small and Large Animals.

* **Internal students:** students from the 4th and 5th years who get actively involved in the clinical duties of the different Services/Specialties during the whole academic year.

Specify student participation in the activities of the mobile clinic and indicate whether or not the hours spent in the mobile clinic are included in those Tables 4.1.3, 4.2, or 4.3.

Clinical practice at the mobile clinic is compulsory for all students enrolled in the core subjects *Internal Medicine* and *Obstetrics and Reproduction* and thus, this has been included in Table 4.1.3.

Equine Mobile Clinic focuses mainly in visiting and caring of sick patients or those with reproductive/obstetric problems, while the Ruminant Mobile Clinic also deals with Production Medicine (farm animals' management, feeding, welfare and reproduction). In both Mobile Clinics, students actively participate in all clinical activities: physical examination, sample taking, treatment administration, etc.

They also make hands-on practices with large animals suffering reproductive and/or obstetrical disorders: genital pathologies, birth assistance procedures, dystocias, artificial insemination and embryo transfer.

There are seven teachers in charge of the mobile clinic (and thus seven vehicles) , driving out daily in the area of Madrid, with a ratio of one teacher and two students for the Equine, and one teacher and three students for the Ruminants mobile clinic. Depending on the circumstances, students can be picked-up by the teacher at the Faculty, or sometimes they have to reach the rural area by their own means (approximately 30-40 kilometres far from the city centre), where they meet the clinician. All vehicles used by these teachers for the mobile clinic are their own private vehicles, not subsidized by the Establishment in any way.

4.8 SPECIFIC INFORMATION ON THE PRACTICAL TRAINING OF FOOD HYGIENE

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

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

Practical training of food hygiene, inspection and technology includes practices at the Faculty premises (laboratories and food processing unit), and also visits to slaughterhouses, food industries, reference official laboratories and other establishments (see descriptions in 6.6 and 6.7).

4.8.1. There are two slaughterhouses available for the practical training of students in meat hygiene and inspection:

- **“Matadero Madrid Norte S.A.”** (with processing lines for cattle, small ruminants/pigs, and ostriches) is located at San Agustín de Guadalix (Madrid), distant 40 Km from the Faculty.
- **“Matadero Gypisa”** (with processing lines for cattle, small ruminants and pigs) is located at Pozuelo de Alarcón (Madrid), distant 12 Km from the Faculty.

The students visit the slaughterhouses' premises in small groups (5-10 students per group), supervised by the Official Veterinary Inspectors and a trainer from the Department of Food Science and Technology (usually a PhD student). During the visits (4h each), the students attend to all the sacrifice and inspection processes.

This includes 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.

4.8.2. Fish/shellfish inspection training (species identification, freshness determination, analytical determination of additives, and hygiene control of fish manipulation, processing and facilities) is performed at “**Mercamadrid**”, distant 10 Km from the Faculty.

4.8.3. Several meat industries (**Cárnicas Valle, Industrias cárnicas MRM2, S.A., Campofrío**) that elaborate different products (cured, smoked, cooked) are visited by the students for practical teaching in meat processing hygiene and technology (HACCP plans, ISO standards, technology and equipment).

4.8.4. Catering services of two of the most important human hospitals in Madrid (**Hospital Gregorio Marañón** and **Hospital Central de la Defensa**) are visited for practical teaching in food handling standards and technologies for consumers with special needs and higher health risks.

4.8.5. Practical teaching in official control and analysis of foodstuffs is also achieved through a visit to the **Centro para la Inspección y Control de la Calidad (CICC)**, a reference laboratory of the Spanish Ministry of Health and Consumer Affairs (*Ministerio de Sanidad y Consumo, MSC*) where microbiological, physical-chemical, genetic and immunological techniques are applied in official inspection programs to evaluate the quality and safety of different products.

All these visits are mandatory practices linked to the *Food Hygiene, Inspection and Control* subject, with the exception of **Campofrío**, that is a compulsory visit of the *Food Technology* subject. Each visit, excluding slaughterhouses, lasts 4h and is performed in groups of 20 students, supervised by the Official Veterinary Inspectors or technical personnel from the establishment, and also by a trainer from the Department of Food Science and Technology (either a teacher or a PhD student). There are no formal agreements with the establishments, so that applications are renewed each academic period. Nevertheless, some of the professionals from the establishments are recognized as Honorific Collaborators (*Colaboradores Honoríficos*) by the Faculty.

2. COMMENTS

Comment on the way in which the veterinary curriculum prepares the graduate for the various parts of the veterinary profession, especially under the specific conditions prevailing in your country / region.

Comment on the way the curriculum is structured and reviewed.

Comment on the major developments in the curriculum, now and in the near future.

Comment on local conditions or circumstances that might influence the ratios in 4.5.

The present veterinary syllabus devotes 39% of its content to basic subjects, 15 % to Animal Production, 25% to clinical subjects, 8% to Food Hygiene and Technology and 13% to professional knowledge. This syllabus provides the students with a basic general training which is flexible and balanced and gives graduates a versatility which allows them a rapid entry into the labour market as they can adapt to the different professional profiles which the society demands (Veterinary Medicine, Animal Production and Animal Health, and Food Science and Technology). It is also the case that the speed at which knowledge is advancing in all areas and the growing need for specialisation makes continuous lifelong education essential for all students even for those who have done postgraduate studies.

Assuming that veterinary professionals must currently cover more areas than the classical clinical one, our Syllabus is designed to combine the acquisition of basic knowledge in all fields of veterinary science (through the core subjects) with more advanced training in one given field (through electives). Our students can design their syllabus choosing certain electives to get a deeper knowledge in their areas of interest, always ensuring also an adequate level in essential veterinary disciplines taught in core subjects. This is in accordance with the recommendations made in the Study Vet2020 (Future Directions of Veterinary Medicine Education, 2003) where it is concluded that future veterinarians must have a wider profile than in preceding years, showing knowledge in emerging disciplines of veterinary science, such as animal welfare, public health, food safety, sustainable livestock production, environment and waste management, for example. In fact, in the last years, we have suffered food crisis such as the BSE, dioxins and others as well as emergence or re-emergence of animal and zoonotic diseases (bluetongue, avian influenza, etc) indicating that more emphasis should be put in these issues.

In this sense, the European countries which opted for a syllabus which identified the profession almost exclusively with Veterinary Medicine, ignoring subjects related to Food Safety, Animal Production or Public Health highlighted the problems which this model had created. Aside from classic and emerging areas of responsibility, the veterinary profession must diversify into new fields such as the handling and management of zoological nuclei, wild fauna and cynegetics, natural reserves and animal parks, business management, research, diagnostic laboratories etc, which have not always been clearly included in the profile of the veterinarian and which should be reflected in the curriculum.

Obviously these future outlines of the professional career of the veterinarian cannot be drawn unless the curriculum is restructured since the existing one is too rigid to deal with these changes. In this context it is difficult to choose a satisfactory model which allows the basic and specific general professional knowledge to be structured and oriented to facilitate integration in the labour market. In Spain the National Quality Evaluation and Accreditation Agency (ANECA, February, 2005) has drawn up the so called *Libro Blanco* on the Veterinary Profession with the aim of carrying out studies and practical models in the design of a Veterinary Degree adapted to the ESHE. The *Libro Blanco* will be presented to the University Coordination Committee and the Ministry of Education and Science for information and consideration. All eleven Spanish Universities (nine public and two private) have taken part in the preparation of this report, which takes into account the opinions of the Conference of Deans of the Veterinary Faculties in Spain and the General Council of the Veterinary Colleges of Spain. This project brings together many fundamental aspects of the design of an undergraduate course model: analysis of corresponding or related studies, studies of employment opportunities, professional profiles and competences etc.

The essential recommendation of this project is to establish a university degree encompassing a total of 300 ECTS credits + 30 additional ECTS credits for a practical work period. In addition, the structure of veterinary studies should tend towards a considerable common core study content (75%), (the maximum established in the RD 55/2005, dated 21 January, which regulates the official university degree courses) which also allows each University some leeway to offer compulsory, elective or optional subjects (25%) which reflect the social, cultural and professional diversity of the different regions of Spain. The core content of our present curriculum is 85% which allows the university a greater margin of syllabus design.

The common training content is divided into 10 thematic blocks with practical work and non face-to-face activities given greater emphasis in each of them (75-85%) compared with theory (15-25%). In this way the number of hours spent in traditional lecture classes is reduced and the number of hours devoted to self-learning and personal work is increased. The 25% non-core margin should allow more advanced study within professional profiles to facilitate the student's pre-specialisation. The distribution model of the specific subject content for each university may vary considerably depending on the ratio of elective to obligatory subjects. If the elective percentage is high, then pre-defined or mixed paths which correspond to professional profiles and others can be added to them. Within each study path species options could be created, as is the case at other European universities.

All these changes imply an adjustment in the teaching methodologies, which should become learning based rather than content based and should establish objectives in accordance with professional competences. The teaching staff has to adapt to the new updated standards which emphasise learning by taking the student's work into account. This will result in an improvement not only in knowledge acquisition but also in its practical application to prepare them for the professional market.

In relation to the practical aspects of teaching we believe it is essential for the students to take part in professional activities from the start of their studies in hospitals, farms etc. so that they can grasp their real context as well as receiving the integrated teaching of clinical and non clinical subjects. The models which permit the horizontal and vertical integration of teaching tend to be more effective in quality teaching. This implies the need for more appropriate teaching staff and smaller and more homogeneous groups of students.

The excessive number of students enrolled, above all in the final years, has a negative effect on teaching, especially on practical teaching. Sometimes the number of students per group is too high to ensure the optimum quality of the sessions. In addition, the overload of students and subjects in the final years of the degree and in the obligatory pre-professional placements results in the students not having enough time to be able to carry out the practical work and creates problems of co-ordination between the different subjects.

The taught course is backed up by extensive extramural practice (400 hours), which in our opinion is quite positive since it introduces our students into the reality of the veterinary profession. Our Faculty has done strong efforts for giving that extramural practical period a good structure, with both one internal and external tutor responsible for student's supervision and guidance.

3. SUGGESTIONS

If the ratios in 4.5. for your establishment do not fall into the category "satisfactory" according to the indicative table in Annex I, what can be done to improve the ratios?

As can be seen in section 4.5, the theoretical training/practical and clinical training ratio (RE) is almost within the satisfactory range. Also, the clinical training/theoretical and practical training ratio (RC) is satisfactory. Both statements are true for both the core subjects and the electives. In the case of the elective subjects, the majority of the ratios (RE) are satisfactory or almost satisfactory and in the case of the ratio RC is very satisfactory for clinical subjects and unsatisfactory in the Animal Production and Population Medicine category.

The following is proposed to improve the ratios:

1. In the case of the ratio RE, reducing the theory hours is proposed by transforming some of them into practical training (supervised work) or self-learning. This aim has the legal limitations imposed by the current syllabus which clearly marks the number of hours of theory and practice which must be given in each subject. In fact the ratio RE established in the current syllabus is 0.95, including the pre-professional placements. The future syllabus, which is in the design stages, should reduce the number of theoretical hours and increase those for self-learning and autonomous work.
2. The ratio for clinical activities (RC) in the Animal Production and Population Medicine category should be improved. We consider that the hours spent on practical work need to be redistributed by transforming part of the practical and supervised work into clinical work. Thus, more clinical practice in Animal Production and Population Medicine is necessary. The Faculty's own facilities housing farm animals should be expanded and improved and the number of animals available increased. The number of contracts

with industries and farms to carry out practical work should be augmented.

Other Suggestions

- ❖ We think that it would be a positive improvement to program clinical practical training (and eventually also extramural work related to Animal Production and Food Hygiene, as well as pre-professional extramural training) at the end of the degree, in a period of time free of tabled lectures, in order to avoid schedule coincidences and to enable student's full time dedication to that training.
- ❖ Until two years ago, students enrolled in the core subjects *Internal Medicine* and *Surgery* did carry out obligatory practicals in the Small Animal Emergency and Hospitalisation Service (being on-duty for a 24h period), but these practicals were suspended due to the fact that it was necessary to have a senior clinician present during the whole shift to consider those practices officially, since residents/interns have no formal teaching capacity. Therefore, we suggest that residents and interns should be recognized as having teaching capacity, so that those practices made under their supervision (like the ER-shifts) can be computed as official.
- ❖ Most of the teaching on “professional activities” is embedded within subject teaching and reinforced through extramural work. Nevertheless, it could be positive to increase the teaching related to the “professional component” in the new curriculum (although it should be mentioned that this kind of knowledge is also extensively offered in postgraduate courses).



Chapter 5: TEACHING: QUALITY AND EVALUATION

CHAPTER 5. TEACHING : QUALITY AND EVALUATION

1. FACTUAL INFORMATION

5.1. THE TEACHING PROGRAMME

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

In the Veterinary Faculty of Madrid the Vice-Dean for Studies and Coordination is responsible for coordinating the teaching program of the Centre, assisted by the CSD. Each subject taught in the Faculty has one or various teachers who act as Coordinators, and various members of the teaching staff responsible for delivering the subject teaching. Every year the syllabus and teaching programme of each subject (theoretical and practical) are sent to the Vice-Dean by the coordinator with all the changes and suggestions with respect to the preceding year. Proposals of new optional subjects can also be submitted. The Vice-Dean examines and reviews the information received to ensure that it matches the curriculum requirements and the Centre's possibilities (classrooms and other facilities, transport, audiovisual resources). Then the Vice-Dean draws up a draft with the whole teaching programme and proceeds to hold meetings with all the coordinators of the subjects in the different years to discuss and approve the teaching plan for the coming year (teaching calendar, timetable of theoretical and practical classes, exam schedule etc.), which has to be ratified by the Faculty Council. The Vice-Dean for Studies and Coordination has to be informed of any proposed modification or change in the syllabus or programming of the various subjects.

The CSD is also in charge of drawing up the timetables for theoretical classes, the classroom distribution, and examination dates. The schedule is designed separating examinations of subjects within the same year as far as possible over the examination period, and ensuring that examinations of subjects in consecutive years are not held on the same day.

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

Traditionally, most of the syllabus has been taught through theoretical classes to large groups of students. In recent years, however, the UCM has gone through important changes to adapt to the ESHE..

In the last academic year (2004/05) the Veterinary Faculty has implemented a 'pilot subject' programme created by the UCM. This new programme has officially laid down the bases for teaching using the methods promoted by the Bologna Declaration (stimulating self learning, problem solving, team working etc.). Each *Pilot Subject* gets an additional funding of 1000 euros/year from the Rectorate. Specifically, five elective/optional subjects have been offered as pilot subjects: *Environmental chemical contaminants*, *Applied molecular biology*, *Veterinary clinical toxicology*, *Exotic animal and wildlife therapeutics* and *Equine clinical medicine*.

The introduction of these pilot subjects has been very satisfactory for teachers and students. For the coming academic year 2005-06 our Faculty has substantially increased the offer to include twelve pilot subjects.

The library services have introduced changes which allow an improvement in the teaching-learning methods (see Chapter 8). The library organises guided visits for students to let them get to know this service better. Training courses are also offered on the use of electronic resources. In addition, through the library web page students can renew or reserve books on loan and access the electronic collection (books, reviews, theses, databases etc). All the information is available on <http://www.ucm.es/BUCM/vet> . Important pedagogical advances have also been made with the implementation of the new technologies applied to teaching, mainly with the creation of the new Faculty web page and the UCM-*Virtual Campus* as well as improvements in our two computer rooms (see Chapter 8).

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

Course notes are usually the main information source used by our students. Additional information is also available in four different formats : photocopy handouts, Faculty web page , Virtual Campus and textbooks recommended by the teachers.

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

There are seven Official Collaboration Agreements established with different external Institutions to complete the extramural training of undergraduate students, especially in the last three years of the degree.

1. **Official College of Veterinary Surgeons of Madrid (and associated Institutions)** : The content of the work experience may include all branches of the veterinary profession (Food safety, clinical medicine, etc.). The number of participants in this agreement is not limited.
2. **Parques Reunidos (Business Group):** This includes various zoos and wildlife parks, allowing students' training with exotic and wild animals by carrying out tasks in clinical, reproductive, feeding or behavioural areas. The number of students is limited (55 students per year) and selection is based on their CV. The centres where student placements are offered are :
 - *Parque de la naturaleza Valwo* (Valladolid): this has a good collection of herbivores and felines housed in a large park.
 - *Selwoventura* (Estepona-Málaga): this extensive nature park offers the possibility of working with many species of land mammals and birds.
 - *Selwomarina* (Benalmádena-Málaga): a centre with modern facilities which exhibits different species of dolphins, parrots, penguins and other marine mammals.

- *Zoo Aquarium de Madrid*: zoological park, dolphinarium, aquarium and bird park with a large variety of species exhibited. It also has a magnificent collection of amphibians and reptiles, *Naturaleza Misteriosa*, situated within the park.
3. **ONCE Foundation for Guide Dogs** : Our students are trained in clinical, nutritional, reproductive and training aspects of guide dogs for the visually impaired. 10 –15 students are accepted per year.
 4. **Ministry of Defence**: It allows training in small animal medicine and surgery, food analysis and clinical pathology, in the facilities of the Military Veterinary Centre. 15 students per year are admitted.
 5. **L´Oceanografic de Valencia** : This aquarium possesses modern facilities that include tanks housing many different marine species from all over the world. This place is highly demanded by our students, but admission is limited to four students per year, two months each.
 6. **Ministry of Agriculture, Fisheries and Food (MAPA)**: Students gain experience in matters related to public health.
 7. **Madrid City Council**: It has been recently signed, and offers training in food safety and other public veterinary related areas.

In addition to the aforementioned agreements, there are numerous verbal agreements to carry out extramural practical training in farms, slaughterhouses, private practices, etc (see Chapters 6 and 7). It is important to mention that all our students are covered by the University Insurance during their extramural practical activities.

5.2. THE TEACHING ENVIRONMENT

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

The UCM is concerned with teacher training. This task is carried out by the University's Institute of Education (*Instituto de Ciencias de la Educación*, ICE). The basic function of the ICE is pedagogical and professional in- service training for the teaching staff of the UCM. To meet its objectives, it programmes various courses each year which aim to satisfy the demands of the teaching staff and academic authorities.

Attendance at the courses offered is voluntary and free of charge and they are programmed in three main areas : European Convergence, Strategies for improving University Teaching and New Technologies applied to Education. The complete list of courses can be consulted on <http://www.ice.ucm.es> .

The UCM offers general training courses also for support staff. Our Faculty also organised two specialisation courses for support staff during the last academic year, on *Laboratory Biosecurity* and *Methods for the Management and Storage of veterinary cadavers and anatomical specimens*.

In addition, our Faculty organises courses on the Virtual Campus where teaching and support staff can get used to handling this important educational tool.

Describe the available systems for reward of teaching excellence (e.g. accelerated promotion).

Once University teachers have attained Tenured or Assistant Teacher status, they may ask recognition for each five year teaching period. This request is passed on to the UCM which is responsible for granting it. Requirements for getting a positive evaluation are not very strict.

In relation to research activity, six year periods are required for evaluation. This evaluation task is carried out by a National Evaluation agency external to the UCM, and is based mainly on the number of publications in SCI journals.

Describe other measures taken to improve the quality of teaching.

Teaching is periodically evaluated by means of questionnaires and CSD meetings. This allows us to find potential problems and to take decisions for improving teaching quality.

5.3. THE EXAMINATION SYSTEM

Describe the examination system of the establishment, particularly in relation to:
Is there a central examination policy for the establishment as a whole ?
If “yes”, by whom is it decided?

There is no central policy about examination methods. Those responsible for the teaching of a specific subject decide how they will evaluate it, always within the general regulations of the University.

The examination calendar is approved yearly by the Faculty Council and published far in advance (before the start of the course) by the Students’ Secretary and also posted on the Faculty web page.

As laid down by the Faculty Council the following information must be included in the examination official announcements: date, time, type of examination, duration, evaluation criteria, date of results publication (at most, 30 calendar days after examination) and date for examination revision.

Are there special periods (without teaching) during the year for examinations?

Theoretical and practical teaching activity is always interrupted during the official examination periods, which are as follows: the last week of January and first two weeks of February; from the second week of June until the first week in July. The second examination period takes place during the first three weeks of September (before teaching starts).

What form(s) of examination are used (written, papers, multiple-choice questions, oral practical, clinical examination, continuous assessment, etc)?

Several types of examination systems are used in the different subjects. Most subjects evaluate separately theoretical knowledge and practical skills. The first one is usually done by means of written exams (mainly multiple choice tests) and accounts for over 50% of the final grade. Particular details for each subject can be found in the Proforma document.

Is used made of external examiners?

There are no external examiners for undergraduate students, but there are for post graduates (see Chapters 11 and 12).

How many retakes of an examination are allowed?

Students have two ordinary sittings per year for each subject (June and September). If they fail, they can use up to 4 additional sittings (extraordinary sittings) throughout the whole degree course to retake one subject (this makes a total of 6 possible sittings for each subject).

Do students have to pass the examination within a certain time?

There is no time limit. The limit is on the number of retakes. To continue in the Faculty a student must pass at least one core subject in their first year. If this is not the case they must leave the Faculty.

Do students have to pass an examination before they can start other courses?

To move on to the second cycle, students must have passed a total of 97 credits, i.e. 2/3 of the total credits of the first cycle. For other years there are no restrictions on enrolment.

5.4 EVALUATION OF TEACHING

Describe the method(s) to assess the quality of teaching used in the establishment. Indicate whether the evaluation is an establishment procedure, or one set up by individual departments, by students or by individuals.

At University level , the Vice-Rectorate for Innovation and more specifically the OCyDE (Office of Quality and Strategic Development) is responsible for carrying out surveys of the teaching staff. Only those teachers who request it voluntarily are assessed and results are confidential.

At Faculty level, the CSD is responsible for analysing and discussing any teaching related problems which may arise during the academic year. CSD meetings include evaluation of different aspects of the theoretical and practical teaching and of the examinations. All the participants (which include a high number of students) are encouraged to freely express their opinions. Results and conclusions are sent to the coordinators of the subjects evaluated so that they can take appropriate measures. This CSD also carries out monitoring of practical teaching by sending check-lists to the subject coordinators and asking the students, through their representatives in the Faculty Council, about the specific running of these. The CSD also designs and supervises the surveys carried out on the different subjects each year.

In addition, each Department or subject area is free to carry out surveys on its own initiative, designing and evaluating these themselves.

Describe the role of students in the evaluation of teaching and teachers.

Students actively participate in evaluation, since they are members of the CSD, the main teaching monitoring Committee of our Faculty. Student representatives also take part in the design of the surveys for teaching evaluation. In addition student representatives in the Faculty Council have weekly meetings with the Vice-Dean for Students to resolve problems which may occur related to teaching.

Describe the follow-up given to the evaluation.

All teaching related problems detected by the CSD and the results of the surveys are forwarded to the coordinator of each subject. The coordinator is then responsible for presenting the results to the Department, which will take final decisions.

5.5. STUDENT WELFARE

Describe the facilities (not related to the teaching programme) which the establishment provides for students (accommodation, sports, recreation, canteen, restaurant, etc.).

The Faculty has a large cafeteria in Building B with seating for 200. In the spring and summer months this is extended with tables on the outdoor terrace. In the hall of the HCV there are vending machines for food and drinks.

The sports facilities of the Complutense University offer the whole university community all kinds of opportunities for enjoying sports, competition and free time leisure activities. On the University Campus itself there are five main sports complexes : four on the Moncloa Campus, nearest this Faculty, and one on the Somosaguas Campus. Activities include football, indoor football, tennis, paddle, volleyball, beach volleyball, rugby, basketball, gyms, indoor sports centres and indoor and outdoor swimming pools. These complexes are : *Complejo Deportivo Zona Sur*, *Complejo Deportivo Zona Norte (Paraninfo)*, *Complejo Deportivo Zona Suroeste (Cantarranas)*, *Complejo Deportivo Nuestra Señora de la Almudena* y *Complejo Deportivo Zona Somosaguas* (More information in <http://www.ucm.es/info/asocult/>).

The Halls of Residence (*Colegios Mayores*) are centres integrated in the UCM which provide student residences and promote the cultural and scientific development of their residents. They function governed by the Statutes of the UCM. More information in <http://www.ucm.es/info> .

The numerous cultural activities of the UCM are very varied and take place in different centres. A complete list of these is published in the web pages of the Vice-Rectorate for Expansion and Diffusion of Culture (<http://www.ucm.es/info/extensio>) and of the General Foundation of the UCM (<http://www.ucm.es/info/fgu>).

This Faculty also facilitates the activities of its ten existing Student Associations, some of them with professional aims and others devoted to more general cultural activities.: *Delegación de Alumnos* (representing the students in the Faculty), International Veterinary Students' Association (IVSA), Veterinarians Without Borders (*Vetermón*), *Avafes* (Association of Veterinarians for the Defence of Exotic and Wild Fauna), *Balaena* (Association for the Study, Research and Conservation of Marine Mammals and their habitat), *El Perro Andaluz* (projection and debate of full length and short films), *La Salamanquesa del Círculo Polar* (leisure and free time), *Alcyta* (Food Science and Technology Graduates Association), *Vekavel* (leisure and free time) and *Club Deportivo* (Sports Club). These associations are housed in six rooms in Building B and one in Building A, with a telephone and computer with internet access in each. There is also the *BAM*, (pet animals adoption register), a combined teacher and student association which has premises in the main building. All these associations can use the facilities of the Faculty, mainly the Auditorium, for meetings, congresses or other activities.

In addition the students of this Faculty (like all the other members of the University) can use, at a reduced price or free of charge the following services offered by the UCM: *Clinical Psychology and Health Unit*, *Ramón Castroviejo Ophthalmologic Research Centre*, *School of Professional Specialization in Clinical Analysis*, *HCV*, *Optometric Clinic*, *Dentistry Clinic*, *Chiropody Clinic*, *Social Assistance Unit*, *Evaluation Centre for Sports Medicine*.

Describe the guidance offered by the establishment (or its parent institution) for students with problems (social problems, study problems, career development, job selection).

For students with financial difficulties there are grants available 'for general purposes and transport costs' which are awarded based on personal and family income and academic performance.

For students with study problems, tutorials are perhaps the best way to offer them direct personalised help. The teacher offers orientation and assessment to the students on all teaching aspects which may improve the teaching-learning process. All the teaching staff have a specific timetable for tutorials which must be observed (minimum six hours per week).

The University Ombudsman is another important source of orientation for the university community. This figure, included in the UCM Statutes is responsible for defending and protecting the rights of the University Student and for ensuring they fulfil their obligations. All the students of the UCM may present their problems, complaints etc. directly to the Ombudsman.

The Office for the Integration of Persons with Disabilities (OIPD), provides direct attention to all those in the UCM community with a disability. Each centre has a coordinator responsible for information and attention to anyone with problems. The list of persons with disabilities is confidential. The Regulations of the OIPD, pending approval, include both students with permanent disabilities and those with temporary teaching needs.

The students have health insurance coverage under the *Seguro Escolar* which is included in their enrolment fees. This student insurance provides the medical assistance in a wide range of circumstances described in the enrolment information which can be obtained in different collaborating centres (hospitals, diagnostic centres, rehabilitation centres etc.).

The Rectorate includes an Office for Gender Equality which has as its basic aim of consolidating the concept of equal opportunities for men and women in the whole University community. There is also a Cooperation for Development Programme which aims to ensure that University students accept a set of values which strengthens society, basically solidarity and the fight against discrimination.

Finally, as far as the labour market is concerned, the Centre for Employment Orientation and Information (COIE), has as its principal aim to assist the university students to find their place as professionals in the labour market. Two additional Units (*Compluempleo* and the *University Employment Unit*) also help to this purpose.

These employment services provide information and orientation on the possibility of carrying out paid placements in private companies; provide a link between students or graduates and companies or official bodies, maintaining job offer registers; offering orientation sessions on employment and job seeking; facilitating Agreements on in-company Practical Training. More information is available from <http://www.coie.ucm.es>

2. COMMENTS

Please give general comments about the quality of the teaching programme under the above headings.

Comment on the usefulness of external examiners.

Comment on the participation of students in the design and monitoring of courses and of the curriculum in general.

- ❖ We consider that the quality of the teaching programme at our Establishment is satisfactory according to the current Syllabus. However, there are several aspects that should be improved but therefore a change of the present veterinary curriculum is necessary. Such a change should focus both on the teaching programmes and methodologies (see Chapter 4).
- ❖ In the spanish education system, external examiners are not a common figure for undergraduate studies. It could be convenient to include them, specially for evaluations/examinations during the final year of the degree.
- ❖ In our Faculty, students can participate in the design and monitoring of course programmes since they are members of all Faculty Committees in charge of those issues , and they have a high number of representatives in the Faculty Council (25%). In addition, they also have representatives in University Commitees dealing with teaching and course evaluation.

3. SUGGESTIONS

Indicate how the examination system can be improved in such aspects as time consumption, efficacy, fairness and selectivity?

What can be done to (further) improve the quality of teaching?

Examination system:

- ❖ Since there are two main examination periods at the end of each semester, students complain that they have a heavy study load at these times. To avoid this and to obtain more balanced evaluation of the overall performance of students, the use of continuous assessment should be increased.

Improvement of the quality of teaching could be achieved with several actions directed both to teachers and to the teaching system:

- ❖ Teaching methods should be implemented to shift the emphasis away from memorising and towards managing information, from didactic teaching to small group and problem oriented learning. They also should promote both horizontal and vertical integration of disciplines.
- ❖ However, introduction of new teaching methods in a University with a very high student number poses a real challenge in both human and material terms. Recent experience with 'pilot subjects' has been very positive, both for teachers and students. However, negative aspects that must be improved include the necessary adaptation of infrastructures (creating smaller class/seminar rooms and improved provision of IT facilities) and the excessively large student numbers that persist in some subjects. For solving the first issue, more funding is necessary.
- ❖ Interactive computer assisted learning is an increasing component of taught courses; both teachers and students should be encouraged to use even more the IT facilities and the Virtual Campus.

- ❖ For implementing the aforementioned teaching methods, it is essential to include some changes in the new curriculum (see chapter 4) and also to increase and improve the formative programs offered to teachers. Furthermore, it could be positive to provide a compulsory comprehensive induction course to new staff, which should include coverage of the development and assessing of new teaching methods.
- ❖ Evaluation methods and rewards for Excellence Teaching should be improved (either economically or contributing for promotion) to stimulate teachers' motivation.
- ❖ In order to be able to develop in our students the skills currently demanded by the labour market , it is be very important to take into account the opinion of veterinary graduates and professionals. Results of surveys recently performed within a project funded by the Spanish Agency for Quality Assessment and Accreditation , ANECA, should be taken into account for the design of the new veterinary curriculum.



Chapter 6: FACILITIES AND EQUIPMENT

CHAPTER 6. FACILITIES AND EQUIPMENT

1. FACTUAL INFORMATION

6.1. PREMISES IN GENERAL

Please give a general description of the site(s) and buildings occupied by the establishment. Include a map if available.

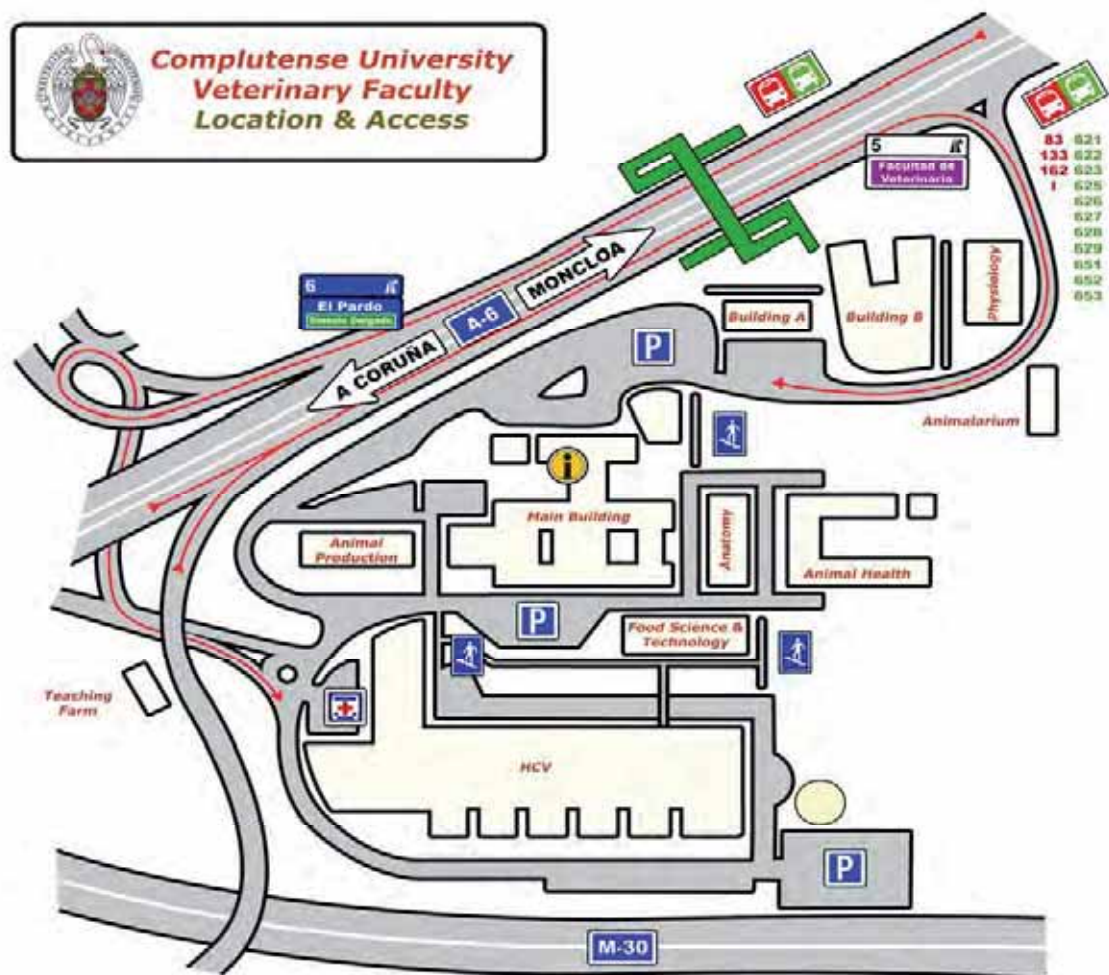


Figure 6.1. Location and Access

The **Veterinary Faculty of Madrid** is located at Moncloa Campus of the *Complutense* University of Madrid. The Campus is placed in the north-eastern area of Madrid, very close to the city centre (Moncloa-Arguelles district).

Its location is very advantageous and vehicular access is very easy, both from outside the city (this is of benefit to large animal transportation, for example, since our Faculty is located very close to Madrid main radial highway M-30), as well as from the city centre (just 10 minutes by car).

The area is very well served by public transportation (bus lines 83 and 133), and also very near to the subway station "*Ciudad Universitaria*" (Line 6).

The Faculty takes up a total area of 90.528 m², and includes 16 different buildings and three fenced areas for cattle and horses.

MAIN BUILDING

This building occupies a surface of 2.225 m², but actually has 15.908 m² in use in its 6 floors. In this building, the following Offices and Services are located:

- Government Bodies and Central Administrative Services of the Faculty.
- Library and two Computer rooms.
- Department of Biochemistry and Molecular Biology IV.
- Department of Pharmacology and Toxicology.
- Departmental Section of Applied Physics.
- Department of Animal Physiology.
- Department of Animal Health.
- Auditorium (*Salón de Actos*), capable of accommodating 295 people.
- Graduates Lecture Room (*Sala de Grados*), which has a capacity of 77 people.
- Meeting Room (*Sala de Juntas*), capable of accommodating 85 people (45+40)
- Teachers Room, with 20 sitting places.
- Two Seminar Rooms, with 25-30 sitting places each one.
- Isotope Laboratory.
- Reprography Service.
- Food Processing Unit (under construction, almost finished)
- Personnel locker rooms.

ANATOMY BUILDING

It has a surface area of 1,959 m² in three floors, housing:

- Department of Anatomy, with its teaching and research labs and facilities.
- Two Dissection Rooms.

ANIMAL HEALTH BUILDING

Occupying 2,315 m² of surface area in two floors, it accommodates part of the Department of Animal Health, with its teaching and research labs and facilities.

FOOD SCIENCE AND TECHNOLOGY BUILDING

It has a surface area of 1,812 m², in three floors, housing:

- Department of Food Science and Technology, with its teaching and research labs and facilities.
- Food Processing Unit.
- One lecture room for 88 people.

ANIMAL PRODUCTION BUILDING

It has four floors, with a total area of 2,405 m², housing:

- Department of Animal Production, with its teaching and research laboratories.
- One lecture room for 82 people.

BUILDING-A

This building, with a total area of 807m², is divided in two floors, housing:

- Four lecture rooms, with 88, 84, 88 and 80 people capacity, respectively.
- Office from one of the students' association.

BUILDING-B

This is the main lecture-room building, with a total area of 2,914 m², divided in two floors, housing:

- The four largest lecture-rooms in our Faculty, capable of accommodating 256, 208, 208 and 216 students respectively.
- Cafeteria and Self-Service Restaurant with a capacity for 200 people.
- Faculty Staff Dining Room, with 60 seats.
- Students' Associations Offices.

ANIMAL PHYSIOLOGY BUILDING

Occupying 782m², it houses the Department of Animal Physiology with its teaching and research labs.

ANIMALARIUM OF THE DEPARTMENT OF ANIMAL PHYSIOLOGY

This facility has a total area of 208m², in a single floor.

TEACHING FARM

With a total surface area of over 18,000m², housing the following facilities:

- Laboratory Building
- Fenced areas for cattle and small ruminants
- Poultry Unit
- Rabbit Unit

HOSPITAL CLÍNICO VETERINARIO (HCV): VETERINARY TEACHING HOSPITAL BUILDING.

It has a total area of 18,648 m² with three main floors and two additional lateral floors. It houses:

- The different Clinical and Support Services, and many Laboratories.
- Department of Animal Medicine and Surgery, with its related teaching and research labs.
- Administrative and Economic Services of the HCV.
- Three large lecture rooms for 120, 120 and 111 students, respectively.
- The facilities of the University Institute for Animal Health, including a Level-3 Biosecurity Laboratory.



Fig.6.2. Aerial view of the Veterinary Faculty

6.2. PREMISES USED FOR CLINICS AND HOSPITALISATION.

Table 6.2.1. Places available for clinics and hospitalisation.

EQUINES Medicine Surgery Reproduction	Total: 33 , distributed: 10 in HCV-Room n°1 10 in HCV-Room n°2 8 in HCV-Room n°3 + 2 places in ICU + 3 outdoor boxes
CATTLE	Total: 26 , distributed: 4 individual boxes * 3 standing places 20 places in a fenced yard outside the HCV building
SMALL ANIMALS -Dogs -Cats	Total: 38 , distributed: 8 in HCV Hospitalisation (<i>H2</i>) 9 in HCV Hospitalisation (<i>H4</i>) 4 in HCV Hospitalisation (large dog boxes) 1 in HCV Hospitalisation (large dog fenced area) 5 in ICU 8 in HCV Hospitalisation (<i>H3</i>) 3 in ICU
EXOTIC ANIMALS -Reptiles -Birds -Small Mammals	Total: 40 , distributed: 5 terrariums + 5 aquariums for reptiles 12 bird cages 18 rabbit, guinea-pig, ferret, hamster cages (Most of them can be divided to house several very small individuals)
SMALL RUMINANTS	Total: 1 box (Can be divided in 2-4 places) *
PIGS	Total : 1 box (Can be divided in 2-4 places) *

* Individual boxes intended to house cattle, small ruminants and pigs can be used indistinctly for any of these species. There are 6 individual boxes that can accommodate 6 separated cows, or, if needed, each box can house from 2 to 4 small ruminants or pigs. In order to avoid double entering of hospitalisation places, we have considered 4 places for cattle and the remaining 2 boxes for small ruminants and pigs, respectively (accommodating 2-4 animals each).

Number of animals that can be accommodated in **ISOLATION FACILITIES:**

Small animals	4	dogs/cats	Isolation Room in Hospitalisation Area
Large animals	1 2-4	cattle small ruminants/pigs	Separated box, within Ruminants ward in HCV
Exotic animals	variable ¹	Small mammals/birds/reptiles	S078 in HCV

¹Due to the large size of this room, several subdivisions can be set in order to allow housing of isolated individuals of different species, if needed.

6.3. PREMISES FOR ANIMALS

Give a description of the facilities for rearing and maintaining normal animals for teaching purposes.

The following healthy animals are used for teaching purposes of several subjects of the curriculum, regardless of the location of their enclosures.

DEPARTMENT OF ANIMAL PHYSIOLOGY

Its *Animalarium* is located in front of the Department's main building, in an isolated facility in the west part of the Faculty's enclosure.

Animals allocated:

- **Mice:** approximately **150**
- **Rats:** approximately **100**
- **Rabbits:** approximately **15**
- **Dogs:** usually around **30**

HCV AND DEPARTMENT OF ANIMAL MEDICINE AND SURGERY

In the HCV building and surrounding facilities, the following animals are kept for teaching purposes:

- **Horses:** usually around **5**
- **Dogs:** from **14** to **20**
- **Exotic animals** (variable number): usually **1-2** green iguanas, around **13** terrestrial quelonians, up to **29-30** aquatic turtles, and **2-3** small birds. Each one is kept in an adequate cage or terrarium according to the needs for the concrete species.

DEPARTMENT OF ANIMAL PRODUCTION

- **Mice:** more than **400**, in galvanized steel cages.
- **Rabbits:** **12**, in metabolism-cages.

TEACHING FARM

- **Cattle:** **15 cows** and up to **60 small ruminants** in fenced areas.
- **Poultry:** approximately **1000 chicks**, kept in battery cages.

DEPARTMENT OF ANIMAL HEALTH

Animals in this area are used for providing faecal samples with parasitic forms for the teaching of practical parasite identification sessions.

- **Poultry:** **4-6**, in avian battery cages.
- **Rabbits:** **4-6**, housed in cages.
- **Day-old-chicks:** variable, usually 20-60.
- **Dipterans** (fruit flies): experimental colony. Undetermined number.

Note on the *Animalaria*:

Design and maintenance of the facilities for animals of the Department of Animal Physiology and the HCV/Department of Animal Medicine and Surgery fulfil the recommendations and requirements established by current Spanish and EU legislation on animal protection and welfare (Annex II of the 86/609/CEE Directive). Thus, both are officially approved and registered by the corresponding Authorities (Registration number EX011-U-CAM and EX033-U CAM, respectively).

6.4. PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

Table 6.4.1 Premises for lecturing

Table 6.4.1: **Premises for lecturing**

Number of lectures halls

Number of places per lecturing hall

Halls	no.1	no.2	no.3	no.4	no.5	no.6	no.7
Places	256	216	208	208	120	120	111
Name ¹	B ₁	B ₂	B ₃	B ₄	H ₁	H ₂	H ₃

Number of places per lecturing hall (continued)

Halls	no.8	no.9	no.10	no.11
Places	88	80	88	82
Name ¹	A ₃	A ₄	A ₇	A ₁₀

Total number of places in lecture hall: **1577**

¹ Name displayed at the Veterinary Faculty Facilities

Table 6.4.2. Premises for group work

Table 6.4.2: **Premises for group work**

Number of rooms that can be used for group work (supervised work)

Number of places in the rooms for group work

Halls	no.1	no.2	no.3	no.4	no.5	no.6
Places	88	84	30	25-30 ²	25-30 ²	25-50 ²
Name ¹	A ₁	A ₂	A ₅	S-1	S-2	A.36.O

Number of places in the rooms for group work (continued)

Halls	no.7	no.8	no.9	no.10	no.11
Places	22	29-58 ²	21-42 ²	12	25
Name ¹	A.35.O	Inf.1	Inf. 2	010.E	009.O

Total number of places in rooms for work group: **386-471²**

¹ Name displayed at the Veterinary Faculty Facilities

² Depending of type of practical work.

Table 6.4.3. Premises for practical work

Table 6.4.3: **Premises for practical work**

Number of laboratories for practical work by students

Number of places per laboratory

Halls	no.1	no.2	no.3	no.4	no.5	no.6	no.7	no.8	no.9	no.10	no. 11
Places	60	60	30	25	10-24 ²	20-40 ²	8	25	5	20	25-35
Name ¹	A	B	C	L-1	L-2	L-3	L-4	L-5	002.A	003.A	A.04.O

Number of places per laboratory (continued)

Halls	no.12	no.13	no.14	no.15	no.16	no.17	no.18	no.19	no.20	no.21
Places	14	16	24	9-12 ²	24	32	24	24	24	12
Name ¹	A.05.A	A.33.B	B.34.A	A.99.J	B-4	P-4	S-3	C1	C2	SC

Number of places per laboratory (continued)

Halls	no.22	no.23	no.24	no.25	no.26	no.27	no.28	no.29	no.30	no.31	no.32
Places	24	24	14	20	15	4	4	4	4	12	16
Name ¹	0.14.A	0.14.C	003.A	S-108	A.12.A	A.12.N	A.12.H	A.12.E	A.12.K	0.44.A	0.18.A

Number of places per laboratory (continued)

Halls	no.33	no.34	no.35	no.36	no.37	no.38	no.39
Places	13	25	5	12-24	20-30 ²	18	5-12 ²
Name ¹	0.16.O	S-111	0.15.O	0.27.A	B.11.A,B	B.13.A,G	EX011-U CAM

Total number of places in laboratories: **730-806²**

¹ Name displayed at the Veterinary Faculty Facilities

² Depending of type of practical work.

Please give a brief description of health and safety measures in place in the premises for practical work (and in the laboratories to which undergraduate students have access)

Safety is a priority during the practical work in every subject. When managing small or large animals, students handle them always supervised by the teacher, and those animals specially problematic are usually directly handled by the teacher. If necessary, sedation protocols and/or other restraint procedures are used.

Before practical work within the laboratories students are always given basic recommendations and guidelines to work under good laboratorial practices protocols, in order to ensure their safety.

Laboratories are equipped with fire extinguishers, fire detection devices, biological and chemical waste and sharps collectors, that are periodically revised and replaced, as well as disposable paper devices. First-aid kits are located in or close to the laboratories.

Depending on the sort of practical work carried out in the laboratories, safety equipment can vary: bathroom fixtures for hand washing and disinfection, eye-rinse emergency devices, cabins, etc. Students must wear protection gloves when necessary and lab coat obligatorily, and before starting their practical work they always get an explanation of the rules to follow during their stay in the facility.

Concerning the X-Ray and Ultrasound Rooms, students are always kept in well indicated safe areas, they are aware of the risks of regulations unfulfillment, and the teachers and personnel carefully look for the correct following of the safety measures.

6.5. DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

Diagnostic laboratories

Briefly describe the facilities available for clinical pathology, diagnostic pathology

6.5.a. DIAGNOSTIC LABORATORIES AND EXTERNAL SERVICES

Several Faculty Departments offer External Diagnostic Laboratories and Services:

- **Department of Biochemistry and Molecular Biology IV:**

MOLECULAR SPECIES AUTHENTICATION SERVICE

Services offered:

1. Fish Species Authentication
2. Meat Species Authentication
3. Component Determination in Ready-to-eat Food
4. Phylogeny Studies and Molecular Evolution (poblational studies, phylogenetic tree determination, etc)
5. Other Services (kit development, exotic or hunting species identification, etc)

The sample volume is approximately 60 cases per year.

- **Department of Animal Medicine and Surgery:**

LEISHMANIOSIS AND EHRLICHIOSIS DIAGNOSTIC SERVICE

It performs immunological diagnosis of both diseases and also serves as an expert advice consultancy for private practitioners from the whole country. The sample volume in year 2004-05 was 3,637 test for *Leishmania* and 1,586 test for *Ehrlichia*.

This Department also offers two more External Diagnostic Services (**PATHOLOGY** and **REPRODUCTION**) but these are described in more detail in section 6.5.b.

- **Department of Animal Production:**

CLINICAL GENETICS SERVICE

It develops different types of genetic analysis, both poblational and molecular. Sample volume: Up to 10,000 per year.

CLINICAL ETHOLOGY SERVICE

This service is intended to give diagnostic advice and treatment for behavioural disorders of domestic animals. In a year, around 30-50 clinical cases are seen.

- **Department of Animal Health:**

ICSA: Complutense Institute for Animal Health (*Instituto Complutense de Sanidad Animal*)

1. SEROLOGY

Serological typification of *Salmonella* spp. for diagnostic purposes, plus performing of diagnostic kits for several viral diseases. Annually, it processes up to 5000 samples.

2. BACTERIOLOGY

Diagnostics, identification and molecular characterisation of microorganisms involved in diseases of domestic (mainly swine, bovine, ovine, fish and poultry) and wild animals. Annually, it processes up to 3000 samples.

3. VIROLOGY DIAGNOSTIC SERVICE

It processes up to 1500 samples per year by ELISA determination, blastic stimulation, lymphocyte characterisation, PCR, etc.

4. MYCOBACTERIA LABORATORY

Diagnostic of Tuberculosis and Paratuberculosis, plus molecular characterizations of isolates for epidemiological purposes. Advisory to institutions involved in eradication campaigns. Annually, it processes up to 2000 samples.

5. FISH DISEASES LABORATORY

Veterinary advice is offered for pisciculture studs, and fish and water bacteriology, isolation and identification are performed.

6. AUTO-VACCINES

Diagnosis and development of farm-specific bacterins against respiratory diseases of swine, fish diseases and poultry diseases. Annually, it processes up to 500 samples.

COLLECTIVITY SANITARY CONTROL

Diagnostic of toxoplasmosis, parasitic diseases in dogs and cats populations. It manages between 200 and 500 cases in a year.

CLINICAL MYCOLOGY AND MYCOLOGY LABORATORY

Mycological analysis and diagnostics of mycosis of samples sent by practitioners from outside the Faculty. Capable of managing more than 400 samples or cases in a year.

SAVEZO: ZOONOSIS AND VETERINARY WELFARE RESEARCH GROUP

Animal parasitic diseases diagnostics:

- Faecal sample management and intestinal parasites diagnostics, in both domestic animals and wildlife.
- Specific diagnostic tests: IFI, ELISA, PCR. Detection of *Cryptosporidium*, *Giardia*, *Neospora* (between 500 and 1000 samples processed in a year), *Toxoplasma*, *Besnoitia*, and *Piroplasma*, mainly.
- Other tests for mange, haematic parasites, etc.
- Detection of *Cryptosporidium* and *Giardia* in environmental samples (up to 50 samples per year)

6.5.b CENTRAL CLINICAL SUPPORT SERVICES

Central clinical support services

Indicate the nature of these services and how they are organised (e.g. diagnostic imaging, anaesthesia, etc)

These services are included in the HCV's structure, within the area called "Central Services", and each of them is coordinated by a "Head of Service", who is elected from and by all the staff included in that Service:

- Anaesthesiology
- Pathology
- Clinical Pathology
- Diagnostic Imaging
- Microbiology and Parasitology
- Reproduction

ANAESTHESIOLOGY

This service carries out sedations and anaesthetic procedures required by the HCV's patients (including exotic, small and large animals) for surgical procedures as well as ambulatory procedures (radiology, clinical examination, diagnostic testing, wound management, etc). It is well equipped with 4 Anaesthesia Units in the Small Animal Operating Rooms, 1 in the Large Animal Operating Room and 4 Mobile Anaesthesia Units. Approximately 1,000 anaesthetic procedures are performed per year. Academic Staff responsible for the service are 4 teachers, 1 intern and 1 veterinarian contracted by the HCV. There is no specific support staff for Anaesthesia; it is shared with the Surgery Service.

PATHOLOGY

This service carries out Anatomopathological diagnostics of necropsies and biopsies, managing all the samples derived from the HCV's clinical cases and also referred by outside bodies, both from private practices and other public organisms. The service is equipped with two large Necropsy rooms, a Histopathology Laboratory and one Anatomopathological Diagnostic Room, adequately equipped for anatomopathological and immunodiagnostic studies. Currently up to 3,000 biopsy samples are processed, and over 500 necropsies are performed in a year. Academic staff is composed by 14 teachers, helped by 3 postgraduate PhD students. In addition, there are 2 support staff and one administrative (the latter shared with the Clinical Pathology Service).

CLINICAL PATHOLOGY

This service carries out all haematological analysis, biochemistry profiles and cytological tests that are received from all HCV's clinics. In addition, it coordinates the activity of the HCV's emergency laboratory. It has 3 different Laboratories: one next to the Small Animal clinic for routine tests, another one for more complex techniques, and the emergency lab. It is well equipped for performing a high variety of diagnostic tests: Haematological analyzer, clinical chemistry equipment, selective ionic analyzer, spectrophotometers, centrifuges, cytocentrifuge, microscopes and refractometers, etc. The sample volume is approximately 21,000 analyses in a year. Academic staff responsible for the service are 5 teachers, supported by one support and one administrative staff (the latter shared 50% with the Pathology Service).

DIAGNOSTIC IMAGING

The duty of this service is to provide ultrasound and radiological diagnostics for the HCV patients, but it also receives referrals from other practices. It has two Radiology Rooms (one for small and one for large animals), well advertised to the public and users and well isolated fulfilling current legislation. There is one X-ray machines and one automatic x-ray film developer en each Room, image digitalizers, and one abdominal Doppler ultrasound machine in the Ultrasound room. Up to 1,700 patients are received in the Radiology Service in a year, and 800 in the Ultrasound Service. Four academic staff are involved in the service. It is remarkable that this service is approved by the Nuclear Security Council (*Consejo de Seguridad Nuclear*, CSN), which is the organism that regulates the activity of diagnostic imaging devices and services in Spain, and dictates the guidelines to follow, including the obligatory appointment of a diplomated Director of Radiodiagnostic Devices. All staff members are certified as Radiodiagnostic Devices Operators, as well as the majority of the HCV's interns/residents. The facilities and devices are checked by the assigned Radiological Protection Technical Unit (*Unidad Técnica de Protección Radiológica*, UTPR), on an annual basis. Support staff is composed by 3 Specialized Radiology Technicians.

MICROBIOLOGY AND PARASITOLOGY

These laboratories carry out diagnostic tests (bacteriology, mycology, immunodiagnostics, virology and molecular biology) of the clinical cases seen at the HCV, and also process samples received from outside the Faculty, both from private and public organisms.

The Service has an up-to-date equipment such as microscopes (optic, fluorescence, phase-contrast, bright camera, inverted, etc), centrifuges (with and without refrigeration system), stoves set at different temperatures, freezers, purified and distilled water devices, autoclaves, thermocycler, electrophoretic devices, fluorimeter, laminar vertical and linear cabins, etc. The yearly sample volume is over 1,500 (each one can comprise several tests). The complete academic staff involves 22 teachers, assisted by 3 support staff.

REPRODUCTION

The activities developed by this service include: seminal contrastation techniques, seminal dilution techniques, embryo and semen cryoconservation, storing of refrigerated and frozen semen samples, both in canine and equine species, vaginal cytology studies, hormone concentration detection techniques, molecular biology-based techniques of DNA determination, protein identification and genetic material processing, uterine and prostate washes, fertility tests, etc. This service receives samples from the HCV's outpatient clinics, but can also process samples coming from the Stallion Stud Service (*Parada de Sementales*) (see below). The equipment is well updated and organised, and it is mainly composed by microscopes (optic, phase contrast, inverted), embryo-freezer, molecular biology equipment, ELISA test lector, semen analyzer, SpermaCue, laminar flux cabins, stoves, freezers, scales, liquid nitrogen storing tanks, etc. In a year nearly 300 vaginal cytologies, 40 canine semen contrasts, and 20 canine semen refrigeration are performed. Academic staff are: 6 teachers and 3 postgraduate PhD students assisted by 1 support staff.

The Reproduction Service also includes the so called **STALLION STUD SERVICE (PARADA DE SEMENTALES)**:

Four equine studs are accommodated every year, between February and June, in the Large Animal Area of the HCV's; they are donated by the Ministry of Defence of the Spanish Government, which has an agreement with the Veterinary Faculty to deposit the horses in its facilities in order to contact mare owners wanting to breed their mares with one of those stallions. This external service offers our students a great opportunity to get hands-on experience in equine reproduction, as they participate actively in all procedures, carry out semen contrasts and dilutions and learn how to perform artificial insemination, etc.

The HCV is properly registered in the Official Register of the Agriculture Direction of the Autonomous Community of Madrid, *Registro Oficial de la Dirección General de Agricultura y Desarrollo Rural de la Comunidad Autónoma de Madrid* (nº Reg ES280790000034), fulfilling all related legislation (RD 176/1997 18 Dec and RD 1881/1994 16 Sep) and being recognized as Equine Species Embryo and Sperm Collection Centre, and thus having permission to perform sperm, ovules and embryo Exchanges within the European Community. Every year, this service carries out between 150 and 170 mare inseminations (including the semen contrast tests and the insemination procedure itself). 25 doses of refrigerated equine semen are obtained daily (between February and June), and 70 doses are delivered all over the country each season.

6.6. SLAUGHTERHOUSE FACILITIES

Describe briefly the slaughterhouse facilities to which the establishment has access, including distances from the establishment and the level of activity.

There are two main slaughterhouses to which the Faculty has access for practical teaching: Matadero Madrid Norte S.A. y Matadero Gypisa (*Ganados y Productos Industriales S.A.*).

Matadero Norte is the most important slaughterhouse in Madrid, producing more than 35,000 MT of meat each year. It is located at San Agustín de Guadalix, distant 40 Km from the Faculty. It has three independent slaughter lines for cattle, small ruminants/pigs and ostriches.

Matadero Gypisa is located at Pozuelo de Alarcón, distant 12 Km from the Faculty. It is also one of the biggest slaughterhouses that receives cattle, small ruminants and pigs which sacrifice is performed in independent lines. It produces more than 30,000 MT of meat each year.

Students visit the slaughterhouses' premises in small groups (5-10 students per group), supervised by the Official Veterinary Inspectors, in order to attend to all the sacrifice and inspection processes. This is a mandatory practice linked to the *Food Hygiene, Inspection and Control* subject.

In addition to the abovementioned in situ practical work of the students, these two slaughterhouses also provide materials (meat pieces, offal, parts of animals) for practical teaching of *Pathology* and other subjects at the Faculty premises.

Furthermore, the Faculty has signed agreements with the ICOVM and the Madrid City Hall (*Ayuntamiento de Madrid*) to allow extramural practical work of the veterinary students in slaughterhouses and several establishments. All the regional slaughterhouses are included in the agreements, allowing the students to spend up to two months of extramural work.

6.7. FOOD PROCESSING UNIT

Describe briefly any access that the establishment has to foodstuff processing units

There is a pilot **Food Processing Unit (FPU)** located at the ground floor of the Department of Food Science and Technology. The FPU includes a clear area of 70 m², an additional room of 30 m² and a cold room (4 °C) of 15 m². The FPU is equipped with the machinery needed for meat products production (meat grinder, fine meat mincer, hydraulic sausage stuffer, slicer, vacuum/modified atmosphere packaging equipment, gas analyzer, convection/steam oven and maturation chamber with control panel). It is also equipped with machinery for elaboration of dairy products (UHT equipment, and complete cheese making line) as well as equipment for dehydration processes (freeze-dryer and spray-dryer).

A **new FPU**, with a clear surface of 209 m² plus an auxiliary laboratory of 53 m², is under construction, almost finished, and located at the floor -3 in the main building of the Faculty. The new FPU is due to be operative for teaching in the present academic year 2005/2006. It will be equipped with the complete machinery needed for meat/fish products production and for cheese making. It will be also equipped with laboratory 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; chemical analysis of water).

The curricular subjects that include practical activities taught at the FPU are: Food Technology (core subject, fourth year), Dairy Products (elective) and Meat and Fish Products (elective). When the new FPU is operative, it will be also used for practical activities in Food Hygiene, Inspection and Control (core subject, fifth year) and Food Microbiology (elective).

In addition to the foodstuff processing unit available at the Faculty premises, the students visit several food industries and central catering services, a central fish market, a reference laboratory and a plant for waste water treatment. During the visits, the students are taught about the technologies, machinery, HACCP plans, quality standards, food handlers training, and analytical methods applied. The establishments visited by the students are:

- **Industrias Cárnicas Valle S.A.:** Located at Leganés (Madrid), 17 Km far from the Faculty. This is one of the main Spanish industries in the production of cooked and/or smoked meat products (frankfurters and other cooked sausages, ham).
- **Industrias Cárnicas MRM2 S.A.:** Located at Móstoles (Madrid), distant 17 Km from the Faculty. Produces cooked and cured/smoked meat products (sausages, bacon, ham, pies).
- **Campofrío S.L.:** Located in Madrid, distant 20 Km from the Faculty. This factory produces 50% of the frankfurter sausages and 5% of the cured hams commercialized in Spain, and it is also the leader of Spanish industry in the export of meat products.
- **Hospital Gregorio Marañón** (Central catering services). Located in Madrid, 8 Km far from the Faculty. Serving more than two thousand meals a day to patients and hospital personnel, these modern premises are equipped with cook-chill technology. The final heating is achieved in trolleys programmed to raise temperature to 85 °C just before serving the meals to patients.
- **Hospital Central de la Defensa** (Central catering services). Located in Madrid, 10 Km far from the Faculty. With capacity for more than one thousand patients, is one of the largest hospitals in Madrid.
- **Mercamadrid** (Central fish market). Located in Madrid, distant 10 Km from the Faculty. This is the most important fish market in Europe, the second in the world. The building occupies 33,000 m² of surface, and commercializes more than 132 million Kg of fish/shellfish, with economic value close to a thousand millions of Euros.

- **Centro para la Inspección y Control de la Calidad (CICC)**, is an official reference laboratory from the Ministry of Health and Consumer Affairs (*Ministerio de Sanidad y Consumo, MSC*). Located in Madrid, distant 18 Km from the Faculty. They have different laboratories for the microbiological, physical-chemical, genetic and immunological analysis of food.
- **Estación Regeneradora de Aguas Residuales (E.R.A.R.) “La China”**. Located in Madrid, distant 10 Km from the Faculty. This waste water treatment plant is the biggest one in Madrid. It harvests and purifies the urban waste water from 11 districts of Madrid (3.3 m³/seg) before its delivery to the river *Manzanares* or its use for irrigation of public gardens. The students follow the three depuration lines of the plant (water, sludge, and gas) and also visit the laboratory.

6.8. WASTE MANAGEMENT

Briefly describe the systems and equipment used for disposing of waste material; cadavers, carcasses, biological waste of different types, excreta, etc.

Cadavers, carcasses, offal and animal tissues coming from the necropsy, dissection and surgery laboratories, as well as those coming from research laboratories, are collected twice a week or on demand by the city's specialized services, and destroyed by incineration. A freezing room is available at the necropsy area of the hospital for the interim storage of these materials. Refrigerated and freezing rooms are also available for this purpose at the Department of Anatomy.

Microbiological cultures and small pieces of animal tissues or organs used for microbiological and parasitological diagnosis are inactivated by autoclave treatment (121°C/ 20 min) before disposal. Food residues do not usually require any treatment before disposal.

Sharp and contaminated instruments like pipette tips, blades, needles or syringes are introduced in special containers, that are sealed, temporarily stored at each Department, and periodically collected by a certified company (*Sistemas Integrales Biosanitarios*) that proceeds to their destruction.

Chemical toxic and hazardous waste produced by research, diagnostic and teaching laboratories are collected separately in appropriate labelled containers (acid and alkaline substances, halogenated solvents, non halogenated solvents, ethidium bromide, others), that are temporarily stored in each Department. A central store for hazardous waste is also available at the Faculty premises, behind the Department of Animal Health. At least monthly, a private company (*BEFESA*) that is certified for the management and destruction of these residues according to UE standards (by the Direction for Prevention of Labour Risks and Work Medicine, *Dirección de Prevención de Riesgos Laborales y Medicina del Trabajo, UCM*) collects the sealed containers for adequate disposal.

Excreta from farm and hospitalised animals is stored in containers and collected by the aforementioned approved external company (*BEFESA*).

The isotope laboratory, located at the ground floor of the main Faculty building, is approved by the CSN. The management of the installation is carried out by a certified company, (*Gestión Integral de Servicios Asistenciales, S.A., GESTISA*), and the periodical collection and disposal of radioactive residues is performed by the public Spanish company accredited for management of these kinds of residues (*Empresa Nacional de Residuos Radiactivos, S.A., ENRESA*).

In addition, there are special containers for collection and recycling of batteries, paper, toner, glass and plastic.

6.9. FUTURE CHANGES

Outline any proposed changes in the premises that will have a substantial effect on the establishment, and indicate the stage which these have reached.

- ❖ In the next months, a MRI diagnostic Service will be operating at the HCV. The MRI facility is ready, and the purchase of the MRI equipment (a modern device, with high versatility for attending both large and small animals) has been already budgeted and approved. This new HCV-Diagnostic Service will undoubtedly receive many referrals (both small and large animals) because currently there are only 3 MRI equipments operative in veterinary hospitals in Spain.

- ❖ A new project that will be finished by the time of the visit has been recently approved. The project consists in housing and keeping at the Faculty 30 Friesian heifers in their first gestational period, performing weekly ultrasound and gynaecological examinations on them, in order to improve students' knowledge on bovine foetal development. Students will collaborate in small groups carrying out physical examinations, ultrasounds, sample collections, etc : this will be of great value to increase their intramural training with farm animals.

2. COMMENTS

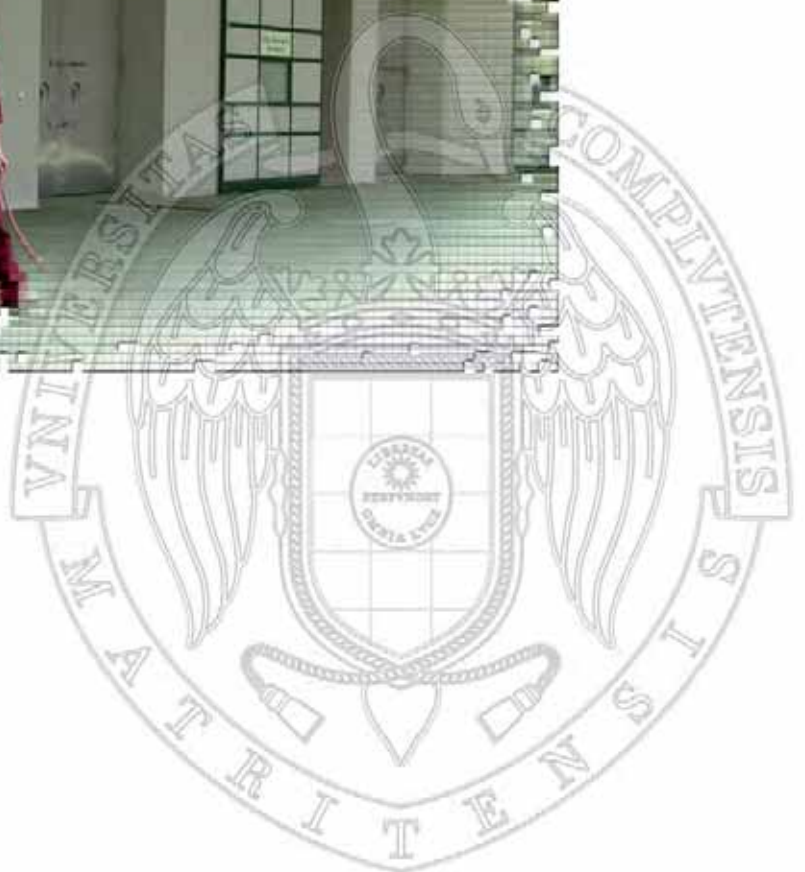
Comment on the adequacy of the buildings in general for undergraduate teaching.
 Comment on the adequacy of the equipment in general for undergraduate teaching.
 Comment on the maintenance of buildings and equipment.

- ❖ The HCV's facilities and equipment, and the buildings and laboratories that have been recently remodelled (Animal Health labs in the main building), are very adequate for undergraduate teaching. However, many facilities have not been remodelled since they were built, due to insufficient economical resources. Many of those are old and overcrowded and need urgent attention.
- ❖ The budget that the Faculty gets for maintenance of buildings and equipments is very scarce (see Chapter 3). As a consequence, funds from research projects must be frequently drained away for that purpose.
- ❖ Some laboratories are shared for the practical teaching of different subjects, which sometimes makes coordination of schedules difficult.
- ❖ Disposal of waste material has been sometimes problematic, because Departments had to store the waste in their own facilities until collection (approximately once a month). We hope that this situation will improve significantly because in June 05, a centralized Faculty facility for waste storage has been created, although its storage capacity should be increased.

3. SUGGESTIONS

If you are unhappy with any situation, please list any improvements you would make in order of preference.

- ❖ The Teaching Farm should be improved and modernized. It must be equipped with adequate infrastructure to carry out practical activities on different animal production systems (milking room, animal quarantine area, etc.).
- ❖ Most of the buildings need major changes to improve power supply in order to guarantee the normal development of teaching and research activities and to allow the installation of big equipments and air conditioning systems to solve the problem of excessive heat in some rooms during the summer.
- ❖ The number of classrooms and labs should be increased, specially the number of small classrooms, to facilitate lecturing to small groups, hands-on learning, and students' autonomous work.
- ❖ A new facility for isolating sick horses is necessary. There is a project still waiting final approval. This project includes remodelling of one large room located within the Large Animal Area of the HCV, which is currently being used for storing clinical material. The new Isolation Ward could accommodate 6 horses.
- ❖ Our students carry out practical training related to Food Inspection and Technology in several modern and well equipped Slaughterhouses or Food Industries which ensures a high standard training. However, agreements established with those premises are usually based on the good relationship of Faculty members with external colleagues. Receiving students many times disturbs the factory's work, and industry managers may refuse maintaining this situation for many years. Thus, it would be convenient to formalize this kind of agreements, signing institutional long term cooperation agreements with those industries.



Chapter 7:
ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

CHAPTER 7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

1. FACTUAL INFORMATION

7.1 BASIC SUBJECTS

Anatomy

Indicate the materials that are used in practical anatomy training, and how these are obtained and stored.

The Department of Anatomy uses cadavers as well as isolated organs of the different domestic animals species (dogs, cats, equines, bovines, pigs, rabbits, poultry, exotic and laboratory animals) for the practical anatomy training of the students.

The cadavers or organs come from slaughterhouses, municipal kennels, from the HCV's own necropsy room, or from private practices or wildlife rescue centres donations.

Several other animal products are also sporadically used, such as eggs (in different development phases), which are obtained from poultry farms, or fetuses with congenital malformations, usually obtained from private practitioners.

All those materials are stored using different conservation methods, depending on their future use: refrigeration, freezing or other specific fixation techniques.

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

Species		Number of necropsies		
		2004	2003	2002
Farm/Large animals	Cattle	33	13	26
	Equines	55	63	62
	Small ruminants	175	61	22
	Swine	8	4	23
	Poultry	13	51	58
Small animals/Pets	Dogs	241	295	245
	Cats	52	71	60
	Other pets Exotic animals*	14	27	36

*Small mammal, avian and reptilian pets.

Indicate the nature and extent of any additional sources of material for the teaching of necropsies and pathological anatomy, including slaughterhouse material.
Indicate the nature of any other animal use in teaching other basic subjects.

Pathological tissues from biopsies or cadavers obtained from the necropsy room, private practices or slaughterhouses are generally used for the practical pathology training of the students.

Some other Basic subjects (namely *Genetics, Histology, Pathology, Physiology, Biology, Pharmacology, Toxicology, Biochemistry, Immunology, Parasitology, and Microbiology*) also use animals or animal derived products for their practical teaching. Live animals (like laboratory animals, fish, shellfish) are generally used, as are biological specimens, like blood, serum, plasma, urine, tissues, exudates, cell suspensions, enzymatic extracts and cell cultures.

Those materials are obtained either from the aforementioned sources (necropsy room, HCV clinical cases, slaughterhouses, kennels) or also from other sources such as the Clinical Pathology Laboratory, cattle farms, pisciculture farms, local markets, and animal housings (from the Veterinary Faculty Departments or from the Central UCM facilities).

Storing these materials is accomplished by fixation, refrigeration or freezing techniques, and live animals are always kept in controlled animal housings (see *Comments*).

7.2 ANIMAL PRODUCTION

Indicate the availability of production animals for the practical teaching of students:

1. On the site of the Institution.
2. On other sites to which the Institution has access.

1) In the Teaching Farm, the following production animals are permanently available for training purposes:

- Cattle (15)
- Small Ruminants (60)
- Rabbits (12)
- Poultry (1000)

2) In order to increase practical work with production animals, our Faculty has access to many external farms and other production animal facilities that are visited by our students:

SITE	ACTIVITY	SPECIES AND NUMBER OF ANIMALS
"Cría Caballar" Stallion centre of Ávila.	Equine reproduction practical training: a) Mare reproductive cycle. b) Semen collection and storage c) Artificial insemination techniques, etc	95 horses; mares and stallions.
Official Centre of the Autonomous Community of Madrid (Aranjuez, Madrid)	Protection and reproduction activities of cattle, ovine, caprine and swine native breeds. Forage experimental cultivation. Agrarian Training School. Students acquire knowledge in farm keeping, animal care and disease management, and basic knowledge in ethnology and animal production systems.	Cattle: 30 Sheep: 200 Goats: 100 Pigs: 100
Livestock Research Centre "Dehesón del Encinar" (Oropesa, Toledo)	Cattle and swine extensive farm	Pure "Avileña" breed cattle. Pure Iberian breed pigs.
Ortega farm (Villarrobledo, Albacete)	Dairy cattle farm. Milk production and marketing. Students undergo practical training in cattle medicine.	50 milking dairy cows
Fco. Gonzalez Alvarez farm (La Serna, Madrid)	Dairy cattle farm. Cattle preventive medicine.	52 milking dairy cows
José Luis Gómez Municio farm (Pinilla de Buitrago, Madrid)	Dairy cattle farm. Cattle preventive medicine.	42 milking dairy cows

Leandro Madrid Herrero farm (Miraflores, Madrid)	Dairy cattle farm. Cattle preventive medicine.	35 milking dairy cows
Herederos de Fco Fdez del Pozo farm (El Cuadron, Madrid)	Beef cattle farm ("avileño" breed) Cattle preventive medicine.	395 beef cattle
Peñacardin, SL farm (La Serna, Madrid)	Beef cattle farm ("avileño" breed) Cattle preventive medicine.	126 beef cattle
Juan M Sanz Domingo farm (Canencia, Madrid)	Beef cattle farm ("avileño" breed and other breeds) Cattle preventive medicine.	198 beef cattle
Valentín Ramírez Herrero farm (Miraflores, Madrid)	Beef cattle farm ("avileño" breed) Cattle preventive medicine.	512 beef cattle
Fomento Ganadero del A L, SA farm (Rascafría, Madrid)	Beef cattle farm ("avileño" breed and other breeds) Cattle preventive medicine.	310 beef cattle
Ovinsa farm (Villaescusa de Haro, Cuenca)	Sheep farm, milk and meat production	10.000 milking dairy sheep 25.000 feeding up lambs
Camporeal farm (Castellana de Ganaderos Sociedad Corporativa) (Camporreal, Madrid)	Dairy ovine farm. Ovine preventive medicine.	Sheep: 1000 dairy sheep 200 replacement lambs
Comunidad de Bienes Santos- Tejedor farm (Proinserga-Integración) (Fuentepelayo, Segovia)	Swine closed-cycle farm Swine preventive medicine	170 sows 1200 piglets - Gestation building - Birth building - Piglets building - Feeding up building
Agropor farm (Cuenca)	Swine closed-cycle farm.	300 sows
Centepor farm (Segovia)	Swine closed-cycle farm.	900 sows
Gireporc farm (Segovia)	Swine closed-cycle farms (7 separated establishments).	3000 sows
Qualia farm (Ciudad Real)	Swine closed-cycle farm.	3000 Iberian breed sows
Avícola Camar poultry farm (Guadalajara)	Heavy-weighted hen farm. Poultry preventive medicine	800.000 hens
Avícola lorenzo poultry farm (Guadalajara)	Heavy-weighted hen farm. Poultry preventive medicine	250.000 hens
Paris poultry farm (Guadalajara)	Heavy-weighted hen farm. Poultry preventive medicine	150.000 hens
La Jabonera poultry farm (Segovia)	Poultry closed-cycle farm.	800 laying hens.

Nutreco farm (Guadalajara)	Broiler chicken farm. Poultry preventive medicine	10.000 broilers
Nutreco Poultry and Rabbit Research Centre (Toledo)	Poultry and Rabbit intensive farm.	Hens: 2000 Broilers: 5000 Rabbits: 150

7.3. FOOD HYGIENE

Indicate the availability of animals and products of animal origin for the practical teaching of students in food hygiene, inspection and technology.

Students carry out practical work in food hygiene, inspection and technology using animals and animal products in several ways:

- ❖ Part of the practical teaching on these subjects is performed on the Faculty premises (laboratories and Food Processing Unit of the Department of Food Science and Technology). The practical work includes handling of products of animal origin like raw meat (pork, beef, chicken), meat products (cured sausages, cooked products), raw and heat-treated milk, milk products (yogurt, cheeses, butter, cream) fish and shellfish, among others. All these products come from slaughterhouses, certified farms or food stores.
- ❖ In addition, students carry out practical work in slaughterhouses, food industries, and reference official laboratories (see descriptions in 6.6 and 6.7).

7.4. CONSULTATIONS

State the number of weeks, in the course of the year, during which the clinics are open.
State the number of consultation days each week.
State the consultation hours.

The HCV's activities are divided in three main areas:

- **Small Animal Area:**
Including all clinical activities related with dogs, cats and exotic pets (see table 7.4.1.).
- **Large Animal Area:**
Including the equine, ruminants and porcine clinics (see table 7.4.1.).
- **Central Services Area:**
Including all clinical support Services in the HCV, giving Service to both the Small and the Large Animal Area : Anaesthesiology, Pathology, Clinical Pathology, Imaging Diagnostics, Microbiology

and Parasitology Laboratory, Reproduction and Pharmacy (see 6.5 for further information).

Table 7.4.1. : Consultation days and timetable at the HCV:

Area	Service	Consultation	Weeks /year	Days / week	Timetable
Small Animals	Internal Medicine	First Opinion consultation	40 *	Mo-Fr	10.00-14.00
		Presurgical consultation		Mo-Fr	
		Gastroenterology		Mo, We, Th	
		Dermatology		Mo, We, Th, Fr	
		Cardiology		Tu, Fr	
		Neurology		Mo, We	
		Nephrology and Urology		Tu	
		Haematology		Fr	
		Endocrinology		We, Th	
		Ophthalmology		Tu, We, Fr	
		Oncology		We, Fr	
		Hepatic diseases		Mo	
		Infectious diseases		Mo-Fr	
	Exotic Animal Medicine		40 *	Mo-Fr	10.00-14.00
	Surgery	General Surgery	40 *	Mo-Fr	10.00-14.00
		Orthopaedics		Tu, Fr	
		Physiotherapy and Rehabilitation		Tu	12.00-14.00
		Odontology		Th	
		Surgery operating rooms		Mo-Fr	As needed
	Hospitalisation and ICU		48 **	Mo-Su	9.00-9.00
Large Animals	Equine Medicine		52 ***	Mo-Su	9.00-9.00
	Equine Surgery	Scheduled	40 *	Mo-Fr	16.00-20.00
		Emergencies	52 ***	Mo-Su	9.00-9.00
	Ruminant Medicine and Surgery		40 *	Mo-Fr	10.00-12.00
Central Services	Anaesthesia	Scheduled	40 *	Mo-Fr	As needed
		Emergencies	52 ***	Mo-Su	9.00-9.00
	Clinical Pathology lab		40 *	Mo-Fr	Sample admission: 10.00-15.00
	Pathology		40 *	Mo-Fr	
	Microbiology and Parasitology lab		40 *	Mo-Fr	
	Reproduction	Small Animal consultation	40 *	Mo, We, Fr	10.00-14.00
		Reproduction lab	40 *	Mo-Fr	As needed
		Stallion Service	20 ****	Mo-Fr	As needed

* September -July (both included), except Christmas holidays and Easter holidays; ** Entire year, except August; *** Entire year; **** February- June.

Table 7.4.2: Number of animals received for consultation in the past three years.

Species		Number of patients		
		2002	2003	2004
Farm/large animals	cattle	*	*	*
	equines	75**	70**	59**
	small ruminants	*	*	*
	pigs	*	*	*
Small/pets	dogs	11392	11296	9834
	cats	1855	1839	1601
	other pets***	421	404	349

* Due to the special characteristics of the Production Animal clinic , most of the cattle, swine and small ruminant patients are not seen in the HCV's facilities, they are visited by means of the Mobile Clinic Service, or are hospitalised and therefore included in Table 7.5.

** Horses treated in the HCV's as outpatients represent only 10% of the total number of equine clinical cases , the remaining 90% are inpatients and thus are included under *Hospitalised patients* (see Table 7.5)

*** Small mammals, avian and reptilian pets.

Table 7.4.3. Breakdown by specialities of animals received for consultation in the Small Animal Area during the past three years.

Consultation	2002	2003	2004	Total
Medicine First Opinion	2444	2085	2014	6543
Presurgical consultation	710	668	671	2049
Gastroenterology	618	568	538	1724
Dermatology	942	953	907	2802
Cardiology	267	262	260	789
Neurology	319	265	258	842
Nephrology and Urology	190	183	68	441
Haematology	33	25	25	83
Endocrinology	278	425	251	954
Ophthalmology	631	679	686	1996
Oncology	325	464	469	1258
Liver disorders	42	42	64	148
Infectious diseases	504	473	505	1482
General Surgery	1991	1105	873	4567
Surgeries	598	584	586	1170
Physiotherapy & Rehabilitation	98	155	80	333
Orthopaedics	209***	776	755	1740
Odontology	220	184	170	574
Reproduction	199	186	138	523
Radiology	1722	2068	1453	5243
Ultrasound	907	985	664	2556
Exotic pets	421	404	349	1174
Total	13668	13539	11784	38991

*** During 2002, most Orthopaedics cases were included within the General Surgery consultations.

7.5 HOSPITALISATION

The HCV offers 24 hour care (including ICU care), both for Large and Small Animals.

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

species		Number of hospitalisations		
		2002	2003	2004
Farm/large animals	cattle	31**	48**	38**
	equines	674	634	531
	small ruminants	occasional**	occasional**	occasional**
	pigs	occasional**	occasional**	occasional**
Small/pets	dogs	205	247	254
	cats	42	51	53
	other pets*	occasionally	occasionally	occasionally

* Small mammal, avian and reptilian pets (lack of personnel prevents these hospitalisations from being regulated, but it is occasionally done and attended by internal students of the Service).

** Due to biosecurity matters, time and cost, farmers are reluctant to take production animals to our Hospital for treatment. For that reason, clinical training with production animals is primarily oriented towards a mobile clinic activity.

Note: Data included in Table 7.5. are referred to the number of patients that have been hospitalised, independently from the number of days that each of them was hospitalised.

7.6. VEHICLES FOR ANIMAL TRANSPORT

State the number and nature of the establishment vehicles that can be used to bring sick animals to the clinics.

State whether or not clients are charged for this Service.

The HCV has a four-wheel-drive vehicle (Nissan Patrol) permanently available for bringing sick animals to the facilities, and two tows (horse/cattle vans). In addition, one of the four other vehicles belonging to the Faculty can be used to bring cadavers or slaughterhouse materials for teaching purposes.

This Service is usually charged to the client, except in those cases with a special teaching or scientific interest, when the establishment assumes transportation costs.

7.7. EMERGENCY SERVICE

Outline what in-house emergency Service is available

LARGE ANIMAL EMERGENCIES

- ❖ The HCV's emergency Service receives equine medical and surgical emergencies 24 hours, 365 days per year. There are always one Medicine clinician, one Surgeon and one Anaesthetist on call; the intern/resident on duty receives the emergency patient (or emergency phone call) and, if necessary, calls in the rest of the clinical team. The patients are brought to the hospital by their owners or transported by the HCV's vehicles.

SMALL ANIMAL EMERGENCIES

- ❖ In the Small Animal Area, the emergency Service is only available for the HCV's patients. Emergencies from animals that are not patients from the HCV are referred to other ER-Hospitals in the area (except life-threatening emergencies which are always admitted). The intern/resident on duty is responsible for emergency receiving; after evaluating the patient, he/she calls in the emergency surgeon/anaesthetist if necessary.

- ❖ This ER- Service is available 7 days a week, 24 hours a day during the entire year, except August. Nevertheless, during Christmas and Easter holidays, there are no senior clinicians on call; therefore, if the resident/intern cannot deal with the ER-patient, it is referred to some specialised ER-Hospital in the area. Small animal-ER-patients are always brought in by the owner.

7.8. MOBILE CLINIC

State the number of hours of operation per week.
 Indicate arrangements for out-of-hours emergency Services.
 State the number, the type and the seating capacity of the vehicles used to transport students working in the mobile clinic.
 State the approximate number of sick animals (specify cattle, swine, equine, poultry or small ruminants, others) seen by the mobile clinic in a year.
 State the average number of visits in a year seen by the mobile clinic to farms and studs for cattle, swine, equine, poultry or small ruminants, others.

The mobile clinic is carried out by the teachers/clinicians of the Department of Medicine and Surgery, always with the presence of students enrolled in clinical subjects (see detailed explanation of mobile clinic in chapter 4).

There are a total of 7 teachers participating in the mobile clinic (including those belonging to the Equine and those from the Ruminant mobile clinic), who cover a total of 256 hours of Service per week (40 weeks/year). Clinicians carry out the mobile clinic in their own private vehicles (7 cars), with 2-3 places available for students each one.

Emergencies are not usually visited through the mobile clinic: Large animals requiring immediate attention must be brought to the HCV, transported in private vehicles or in the HCV's vehicles.

The number of animals and farms visited in the year 2003-04 is shown in Table 7.8.1

7.8.1. Animals and Farms visited by the Mobile Clinic.

Number of sick animals visited / year		Number of visits to farms or studs / year	
Equines	1900	Equines	602
Cattle	7850	Cattle	484
Small Ruminant	400	Small Ruminant	25
TOTAL	10150	TOTAL	1111

7.9. OTHER INFORMATION

Indicate any notable additional outside sources of material for clinical training purposes, such as animal charities, animals awaiting slaughter, etc.

The Faculty has recently signed an official agreement with the Madrid City Council, which will allow to bring many small animals from shelters for sterilisation, providing additional surgery training for students (starting 2005/06).

The Department of Animal Health has signed agreements with the 12 municipal kennels (run by Madrid City Council), with Animal Welfare Societies and with several private animal shelters. Staff from the Infectious and Parasitic Diseases Service offer clinical help to these Institutions at low cost, in the form of preventive and curative veterinary medicine, and also carry out epidemiological studies. In exchange, our students have the chance of doing some additional clinical training in these Centres. Due to the animals' diverse origins and the crowded conditions, the shelters' populations tend to harbour transmissible diseases (both parasitic and infectious) that have a low impact rate in private clinics. These populations are also an important source of short-lived biological samples, offering feedback for the infectious diseases practice within the Veterinary Clinical Hospital by providing samples of rare parasites and animals infected with certain diseases that would be difficult to show to students in house pets. In addition, these sources have been the starting point for many doctoral dissertations about Preventive Medicine, Epidemiology and Transmissible Diseases.

The Department of Animal Medicine and Surgery has signed agreements with various wildlife rescue centres (GREFA¹, BRINZAL²) offering them clinical Services with students participation. The goals are the same: to offer help to Institutions with scarce resources, and at the same time to increase the number of clinical cases available for student training.

In addition, our Faculty has official agreements with other external Institutions for increasing the clinical training of our students (described in Chapter 5).

¹GREFA: Autochthonous wildlife rehabilitation group

²BRINZAL: Nocturnal raptor rescue centre

Indicate how the level of clinical Service that is offered by the establishment (in small companion animals, equines and production animals) compares with outside practices in terms of facilities, hours of Service, equipment, expertise, responsiveness, etc.

Facilities and equipment

The HCV's facilities and equipment are superior to most of those belonging to private centres in the area. The HCV has many spacious, well-designed and well-equipped rooms to be able to manage patients of different species. In general, the HCV is well-provisioned with large diagnostic and treatment devices (radiology, ultrasound, echocardiography, endoscopy, surgical microscopes, anaesthetic appliances, dental equipment, diagnostic laboratory equipment, arthroscopy, etc.). Nevertheless, the bureaucratic obstacles arising within the University sometimes hinder the HCV's ability to acquire large equipment ordered by the different Services to adapt to technological development (for example, gammagraphy for equids) and to replace outdated appliances. An example of these problems is the purchase of a Magnetic Resonance apparatus: it was included in the HCV's budget more than two years ago, and work to prepare the room designed to house it is completely finished, but its purchase is still in process due to administrative problems.

Timetable

The timetable for large animals is optimal, because the emergency Service guarantees attention 24 hours a day, every day of the year.

The timetable for small animals is different and is more limited than that of some private centres. The HCV only admits out-patients Monday to Friday, from 10 am to 2 pm. During the rest of the day, weekends and national holidays , the out-patient clinic is closed; animals coming to the HCV can be admitted through the Emergency Service but only if they are already patients of our Hospital. If they are not, they are referred to other ER-Hospitals in town (unless it is really a life threatening emergency, which will be always admitted). During the month of August no Small Animal Services are available.

This timetable is limited compared to what most private Small Animal centres offer. The lack of personnel, both clinical and support staff, within the HCV's different Services does not allow us to extend it for the time being. Nevertheless, the caseload is sufficient to provide adequate practical training to our students.

Indicate what areas of clinical specialisation are covered, and the extent of the coverage (for example, a veterinarian with a particular specialisation may see patients in the clinic for one day a week, 3 afternoons, etc.).

Specialties / Services offered

The range of specialties and Services offered by the HCV, for both large and small animals, is very satisfactory and better than what most private centre in the area can offer; many of these offer very specialised care in one or two clinical areas, whereas in our centre we bring together most Veterinary Specialties and offer integrated and multidisciplinary care. Nevertheless, there remain some highly specialised fields that can not yet be offered at the HCV for lack of personnel and equipment (e.g. magnetic resonance, radiotherapy, haemodialysis, etc). The timetable for consultations in the different specialties is detailed in Table 7.4.1.

Staff experience and qualifications

The experience and qualifications of the HCV's staff is adequate and better than in most private centres. All clinicians are very well trained in their respective specialties; apart from the clinical experience gained from caring for many patients, training continuity is encouraged by means of placements in other centres, courses, seminars, etc. However, although qualifications are good, few of the HCV's clinicians are accredited as specialists through European or American professional bodies. We hope to improve this in the future.

In some Services, however, the experience and qualifications of the support staff is more limited, which means clinicians have to spend time on work which should be carried out by technical staff. This is the result of the University's recruitment system which does not always take into account the centre's specialisation needs. Although we try to select personnel according to their training in the clinical area where they are going to carry out their work, the system sometimes limits this procedure (see chapter 10). There is also understaffing of support staff in some Services.

Provide an indication in percentage terms of the proportion of cases that are primary (i.e. first opinion), and referrals (provide a breakdown by species, if helpful). If the establishment has a particular aim or policy as regard this mix, describe it.

The proportion of referred cases is highly variable depending on the area and the speciality consultations.

For small animals, average patient referral is 30% of cases seen. However, this percentage is much higher in some speciality outpatient clinics (hepatic diseases, for example, has almost 80% referrals). It is not possible to determine objectively how this percentage will evolve in the coming years, but, subjectively, a steady increase can be seen.

For large animals, almost 100% of cases are referred.

The HCV's policy is to encourage case referrals; in order to do this, appropriate measures are put in place to ensure the system works adequately. Clinicians who receive referred cases contact the vet by phone, and, once the requested diagnostic tests and/or therapeutic protocol has been completed, send a complete written clinical report; besides, no test is carried out that has not been previously authorised by the referring vet. Finally, owners of referred cases are encouraged not to come to the HCV for diagnosis or treatment of other diseases without the knowledge of their vet.

Nevertheless, we consider that keeping a significant number of first opinion cases provides valuable material for teaching because those are the cases that our students will face most frequently when they graduate.

Outline how the fees for clinical Services are decided, and how these compare with those charged by private practitioners.

Each year, representatives of the HCV meet with private clinicians through the professional associations and the professional college (ICOVM) to study the market trends for the various clinical acts, and establish a list of minimum recommended prices. The HCV's fees are adjusted according to these prices, in order to avoid unfair competition.

As a general rule, the HCV's fees are equal to or higher than these minimum prices recommended by the ICOVM. In some routine clinical acts (e.g. orchidectomy, ovarian hysterectomy, mastectomy) the HCV's prices are higher than the usual fees in a private clinic.

Indicate the relationship the establishment has with outside practitioners (in small companion animals, equines and production animals) in terms of matters such as referral work, providing diagnostic or advisory Services for private practitioners, practitioners participating in teaching, holiday or "seeing practice" work for students, feedback on the level of clinical training.

The relationship between the HCV and its clinicians with private practitioners is generally good. For all species, HCV clinicians are members of the respective professional associations (AVEPA, AMVAC, ANEMBE, AEVEE)* , with which they actively collaborate, and even occupy posts on their boards, scientific committees or referee groups for their publications. Furthermore, it is quite usual for these associations to request help from HCV clinicians in giving courses, seminars or lectures in their annual congresses.

As we have mentioned before, for large animals practically all cases are referrals; for small animals, although the proportion of referred cases is smaller, it is commonplace for private clinicians to contact the HCV's specialty clinicians by phone or email to ask for advice about their cases.

In addition, private clinics frequently make use of the HCV's external Services (Pathology, Microbiology and Parasitology laboratories); even in the case of laboratories that do not offer external Services, private clinics often request advice about some test they have carried out in their own facilities (e.g. cytology interpretation, blood smears, etc).

Another interesting aspect that favours relations with private clinics is the placement system that certain specialties and Services offer to private practitioners (see chapter 12).

* (AVEPA: Small Animal Specialists Veterinary Association); (AMVAC: Companion Animal Veterinarian Association of Madrid); (ANEMBE: National Association of Bovine Specialists); (AEVEE: Spanish Association of Equine Veterinarians)

In addition, members of the HCV meet periodically with the governing boards of the professional associations to discuss profession-related topics (fees, deontological committees, etc...) and establish measures to improve relations with private clinics or solve problems that might have arisen.

Relations with private clinics are improved by the HCV's policy of not vaccinating and maintaining higher prices for routine clinical treatments that make up the work base of many private clinics. The fact that there is no emergency Service for small animals that are not HCV's patients, and, to some extent, that appointments are only in the morning also facilitates relations with private clinics, since this makes it clear that the HCV's policy is to take patients only within a teaching context, and to assist private colleagues from outside the Faculty by offering more specialised Services.

Describe (if applicable) any other relationships with outside organisations that are routinely used to provide students with training (in particular practical training) in other clinical subjects (e.g. pathology work, interaction with state veterinary work).

There are agreements with many different external organisations where our students carry out further practical training, within the subject *Placements (Estancias)*. (For further information, see Chapter 4. See Annex I for a detailed list of the centres.)

Provide an outline of the administrative system(s) used for the patients, e.g. in terms of how case records are kept, how data is retrieved, whether systems are centralised, etc.

All patient-related administrative tasks are dealt with through the reception-appointments section, with five members of administrative-support staff (2 for payments, 3 for appointments and records maintenance).

The first time that a patient comes to the HCV, it is registered on the centre's computerised database, with the owner's data (name, address, ID, telephone), and the patient's file (species, breed, age, sex); each patient is registered with a unique correlative record number. Record numbers for large animals include a letter identifying the species.

Patients' clinical files include adhesive labels with all the owner's and animal's data that will be used to complete the forms requesting tests, to reduce the likelihood of an error when data are reproduced in the different Services.

In the Small Animal area, owners coming to an appointment must sign a pay-sheet, agreeing to pay clinical interventions carried out on the patient. In this same document, clinicians will indicate tests carried out so that, at the end of the visit, fees can be collected at the payment desk, and the appropriate invoice issued. Owners of animals to be hospitalised must pay a deposit that covers expenses incurred during the first 48 hours. For large animals, owners pay a deposit covering 50% of the preestablished budget.

Each patient's record is kept in an envelope along with clinical data sheets and reports of the different tests performed. These record envelopes are stored, in numerical order, in the HCV's file, which is maintained by staff in the admission and appointments section. Unfortunately, we do not have a computer network that allows us to collect all the clinical data of each patient in a central records database. Some Services, mainly laboratories, have designed their own specific databases, but their results are given in hard copy and must be included in each patient's envelope by the administrative staff. We are currently studying the creation of computer software to include all data from clinical records and enable this information to be consulted from any of the HCV's computers.

The admissions and appointments section is also in charge of answering phone calls (phone enquiries for clinicians are passed on to each of them), giving appointments for the different specialty consultations by telephone or in person and having patients' records prepared for each day's appointments before the consultations begin.

7.10. RATIOS

(All Data referred to year 2003)

7.10.1. Animals available for clinical work

Ratio:

Students / Production animals treated by the Institution clinics

Number of students graduated	164
Number of production animals	10902

1 / 66.47

Ratio: Students / Companion animals treated at the HCV

Number of students graduated	164
Number of companion animals	13787

1 / 84.06

7.10.2 Animals available for necropsy:

Ratio: Students / post-mortem examinations

Number of students graduated	164
Number of cadavers necropsied	585

1 / 3.56

2. COMMENTS

Comment on major developments in the clinical Services, now and in the near future.
Comment on local conditions or circumstances that might influence the ratios in 7.10.

- ❖ The upcoming opening of an MRI Service at the HCV will surely increase the number of referrals, both in large and small animals.
- ❖ The horse race-track of Madrid (*Hipódromo de La Zarzuela*) will be reopened next November. This will surely allow, as was the case in the past, access to an important population of horses. This facility has a very convenient location, no more than 1 Km away from the Veterinary Faculty.

- ❖ Thanks to the HCV organisation, and to the fact that all Clinical Services and Activities are integrated within a single building, it is possible to have an optimal interaction/ coordination among the different Services, enabling students to follow the cases, starting at the outpatient or mobile clinic, continuing through diagnostic test, imaging, surgery, etc. and, eventually, post-mortem examination.
- ❖ The Small Animal ER-Service could be improved, opening it to all animals and not only to the HCV-patients. However, the lack of economic compensations for the clinicians involved in after-hours shifts, and the lack of technicians/support staff during night shifts, weekends and holidays make it difficult for the time being.
- ❖ It is important to mention that all research and teaching activities using live animals at our Faculty are monitored by specific Ethics Committees.

From 2000 to 2004, our Faculty had its own Committee on Ethics in Animal Experimentation, integrated by Academic and Research Staff and technicians in charge of experimentation with animals. Its task was to evaluate research and teaching activities involving the use of live animals, to ensure the fulfilment of Animal Welfare standards and legislation. In March 2004, a similar Committee was created at University level (*University Committee on Animal Experimentation*) that has now become the official Committee responsible for the aforementioned tasks.

The HCV has its own Ethics Committee, integrated by representatives of the Large Animal Clinic (2 members), Small Animal Clinic (2 members), Central Services (2 members) and Support Staff (1 member). None of its members can form part of any of the Governing Bodies of the HCV. Its tasks are to ensure that all the HCV patients receive adequate treatment and assistance, to ensure the well-being of all animals at the HCV, as well as to ensure adequate professional ethical behaviour towards the HCV patient owners and towards veterinarians outside the HCV. This Ethics Committee was also in charge of evaluating research projects using animals within the HCV but the University Committee on Animal Experimentation assumed this task in March 2004 (see above).

3. SUGGESTIONS

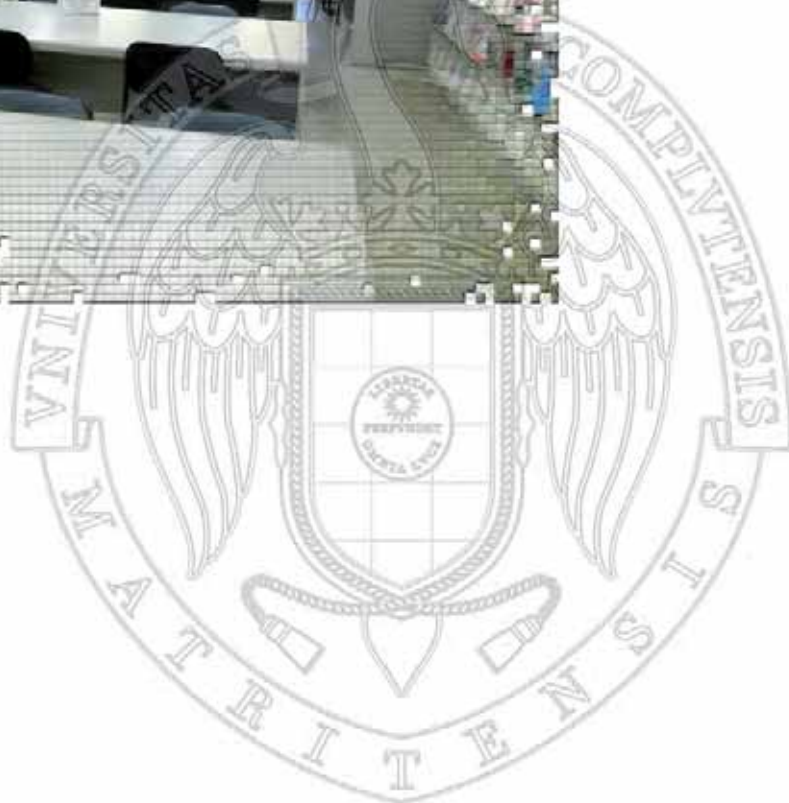
If the ratios in 7.10. for your establishment do not fall into the category “satisfactory” according to the indicative table in Annex I, what can be done to improve this ratios?

- ❖ The necropsy ratio falls slightly within the unsatisfactory range. The number of companion animals necropsies seems adequate, but it would be recommendable to increase necropsies from ruminants and pigs. However, this is not easy: biosecurity regulation related with BSE make it difficult to bring bovine cadavers to the HCV, and the absence of pig farms in the vicinity of Madrid raises transportation costs. We are planning to establish agreements with pigs and small ruminants farms in the next future, in order to improve this situation.
- ❖ Although the ratios for production animals in 7.10. are satisfactory, we are aware that the number of farm animals (mainly Ruminants and porcine) available at the Teaching Farm and HCV is not optimal; we are trying several ways to improve this situation:
 - Organising visits to external farms/ facilities, where students carry out additional hands-on practice with different species of production animals. For that purpose, the Academic staff of our Faculty has made an important effort to establish agreements with many different farms (including the most important ones in the Madrid area), as shown in section 7.2.b. However, some of those agreements are not official, and are based on the good relationship that our teachers have with non-university colleagues; it would be important to have Institutional support for formalising these kinds of agreements to ensure adequate training of our students in the future. In addition, three new part time teachers have been recently contracted to increase the number of visits to farms, mainly swine, cattle and sheep farms.
 - Despite the reluctance of farmers to bring sick production animals to the HCV facilities due to biosecurity matters, our production animal clinicians manage to bring patients to the Hospital that are used for clinical teaching, at no cost to the farmers. Depending on the species, condition and disease control status of the herd, those animals may often be

slaughtered or euthanised after treatment, providing additional teaching material for the Pathology Department.

- Finally, by means of our very active Mobile Clinic, the number of large animals visited by students is quite high, especially considering that Madrid is a big city and the number of production animals in the area is scarce.

In order to be capable of improving even more the visits to external farms and the Mobile clinic activities, it would be desirable to have more Faculty vehicles/ drivers, since in many cases students have to reach the farms by their own means, and in all cases the vehicles used for the Mobile clinic are the teacher's private vehicles.



Chapter 8: LIBRARY AND LEARNING RESOURCES

CHAPTER 8. LIBRARY AND LEARNING RESOURCES

1. FACTUAL INFORMATION

8.1. LIBRARY

Give a general description of the Library/libraries of the establishment/university that are available to students. Indicate how the Library/libraries are managed (e.g. Library committee).

The Library of the Veterinary Faculty occupies a total area of 927 m², divided into the following sections:

- 250 m² : General Reading Room (158 reading places)
- 152 m² : Periodicals Reading Room (48 reading places)
- 366 m² : Storeroom
- 54 m² : Staff working area

There is a total 2,694 m² of shelving.

From the point of view of its organic structure, the Library of the Veterinary Faculty has a twofold dependence: organically it depends on the Faculty Manager, and functionally on the Director of the *Complutense* University Library (*Biblioteca de la UCM*, BUC). The BUC comprises 31 libraries and central services. It is the second largest Spanish Library in terms of number of volumes.

There is a Library Committee delegated by the Faculty Council (see Chapter 2 for composition) to regulate Library' functioning and the acquisition/elimination of Library stocks.

The budget of the Library is provided by the following sources: a Faculty contribution, a contribution from the ICOVM (resulting from a signed agreement), a contribution from a bookshop in exchange for the display cases and a subscription to a Journal paid by a Laboratory. In addition, since 2004 the BUC has set aside an annual amount for the acquisition of basic bibliography, so that the budget breakdown for 2005 is as follows:

- Veterinary Faculty: 85,395 €
- ICOVM: 5,409 €
- Book shop donation: 900 €
- Journal Subscription paid by a Laboratory: 1,464 €
- Funding from the BUC for basic bibliography: 8,870 €
- Total : 102,038 €

Access and use of material in the Library is freely available to all members of the Faculty (undergraduate- and postgraduate students, teachers, support staff and researchers) and also to all veterinary professionals members of the ICOVM.

For each major Library of the establishment, please provide the following information, either in narrative or in tabular form.

Main Library:

- is this specific to the veterinary training establishment? YES

- is this common to two or more establishments? NO

State the Library's annual operating budget over the past three years:

Year - 2005	102,038	Euros
Year - 2004	99,902	Euros
Year - 2003	87,067	Euros

Number of full-time employees 10

Full time equivalents of part time employees 2
(3 grant holders)

Number of books 35,656
(3,400 of the XIXth Century)

Number of journals received each year (in addition to books) 234

Number of student reading places 206

Library opening hours:	<u>Weekdays</u>	<u>Weekends</u>
during term-time	12h (8:30-20:30)	Closed
during vacations	5 h 30 min (8:30-14:00)	Closed

Number of loans to students per academic year 12,407

Number of books used in the reading room 12,500

Give an outline description of any computerised document search system that is accessible to students.

The Library stocks may be consulted on-line in the catalogue of the BUC¹, which is integrated in the collected catalogue of the Spanish University Libraries Network² (*Red de Bibliotecas Universitarias de España*, REBIUN). Monographs, periodical publications and any other document whatever its support can be consulted in it. There also exist monthly alert bulletins³ both for the monographs and for the journal summaries, generated by the UCM's computer services (*Compludoc*).

The electronic resources can be consulted with access to complete text in the following catalogues: the *E-libro platform*⁴ (more than 20,000 books), *Biblioteca Digital Dioscórides*⁵ (more than 3,000 books dating from before the XIXth Century and more than 40,000 engravings and illustrations), electronic periodicals site⁶ (more than 20,000 journals with complete text) and *Complured*⁷, the Internet open access resources site.

The BUC has recently implemented an electronic archive for the electronic publications by UCM teaching and research staff, the server *E-Prints*⁸ (more than 3,000 documents).

In addition to all those information sources, users may also consult the on line catalogue with the list of books recommended by teachers for the different subjects⁹.

The Library of the Veterinary Faculty publishes weekly bulletins with book news and summaries¹⁰. In addition, our webpage includes a Bibliography section which brings together all the information on the Veterinary Faculty courses and the bibliography recommended for each subject¹¹.

¹ http://cisne.sim.ucm.es/search*spi~

² <http://rebiun.crue.org/cgi-bin/abnetop/X16394/ID1950380569?ACC=101>

³ http://cisne.sim.ucm.es/screens/libinfo_04_spi.html and <http://europa.sim.ucm.es/compludoc/>

⁴ <http://0-site.ebrary.com/cisne.sim.ucm.es/lib/universidadcomplutense>

⁵ http://cisne.sim.ucm.es/search*spi~S4

⁶ <http://alfama.sim.ucm.es/revistas/revistas.asp>

⁷ <http://alfama.sim.ucm.es/complured/>

⁸ <http://www.ucm.es/BUCEM/202007.htm#Pre-prints>

⁹ http://cisne.sim.ucm.es/search*spi/r (search by subject) / http://cisne.sim.ucm.es/search*spi/p (search by teacher)

¹⁰ <http://www.ucm.es/BUCEM/vet/bolsemanal.htm>

¹¹ <http://www.ucm.es/BUCEM/vet/bibliografias.htm>

Subsidiary libraries of the establishment

Please describe the subsidiary (e.g. Departmental) libraries of the establishment, and arrangements for student access.

Some Departments hold a bibliographic stock of monographs and periodical publications, which can generally be accessed by students with the authorisation of a teacher and a rapid return of the document.

Indicate whether the main Library holds a list of individual books of the subsidiary libraries.

The Faculty Library has a catalogue of all the books allocated in the different Departments. This is on written paper for books catalogued before 1992 (the year when the BUC was automated), whereas the books added after that date may be consulted in the general catalogue (*CISNE*), accessible from any terminal connected to the UCM network.

8.2. INFORMATION TECHNOLOGY SERVICES

Please give the following information in either narrative or tabular form.

(a) Audio-visual service

- | | |
|--|-----|
| - is this specific to the veterinary training establishment? | YES |
| - is this common to two or more establishments? | NO |

Number of full-time employees	10
Full time equivalents of part time employees	2
Total number of videocassettes available	132 (Videos/ DVD)

Is there a viewing room?	YES
--------------------------	-----

If so, indicate:

- | | | |
|--|------------------------------------|----------|
| - the number of places | 2 | |
| - the number of hours it is open each week | 60 | |
| - the opening hours: | Weekdays | Weekends |
| during term-time | 12 h.
8:30-
20:30 | Closed |
| during vacations | 5h 30
minutes
8:30-
14:00 | Closed |

(b) Computer service

Is the computer service/department:

- specific to the veterinary training establishment? YES

- common to two or more establishments? NO

Number of full-time employees

Full time equivalents of part time employees	2
--	---

Number of computers available in the service:

- less than three years old	1
-----------------------------	---

- more than three years old 50 *

Do students have free access to these computers for their own use? YES

Is there a computer room for self-use by students? YES

If there is, please indicate:

- the number of places 50

	Weekdays	Weekends
- the opening hours:		

during term-time	10 h	Closed
------------------	------	--------

9:00-14:00

15:00-20:00

during vacations	Closed	Closed
------------------	--------	--------

Does the service/department provide teaching in the use of computers? YES

Does the establishment use interactive CD-ROM for teaching? YES

If so, how many programmes are available? See Virtual Campus

* Although most computers are more than 3 years old, all software is updated regularly (at least once a year) and some improvements in hardware (i.e. RAM) are made periodically.

2. COMMENTS

Library:

Please comment on the adequacy of the books and journals, of the opening hours and of the provision of reading spaces and support personnel.

❖ Adequacy of the books and journals

The Library stocks are specialised in Veterinary Sciences, Agriculture, Animal Production, and Food Technology and Hygiene. The acquisition policy is based on the bibliography recommended by teachers for each subject (which is also posted on the web page¹²), on specific requests by teachers and on the bibliographical lists put forward by the Library to the Library Committee. Since the teaching staff intervenes directly in the selection, the content of the collection is adapted to the teaching needs.

The annual subscriptions to Journals are also approved by consensus of the Library Committee. The titles currently received can be consulted in the general catalogue or in the webpage of the Faculty Library¹³.

The Library spends annually more than 12,000 € on its collection of monographs, and the budget for periodical publications in 2004 was over 66,000 €. In addition to the Journals subscribed to by the Faculty Library, the Central Library Services of the UCM make available to the University community the complete text of more than 19,000 periodical publications through the information server¹⁴.

If an article is requested and it cannot be found either in the Library Periodicals collection or among those 19,000 electronic journals, the Library will provide the article by requesting it through the inter-Library loan service.

❖ Opening hours

The Library opening hours are established by the BUC Central Services depending on the academic calendar (on teaching days the Library is open 12 hours per day and non-teaching days 5.5 hours per day). This timetable in general covers the students' needs although

¹² http://cisne.sim.ucm.es/search*spl/r
http://cisne.sim.ucm.es/search*spl/p
<http://www.ucm.es/BUCM/vet/bibliografias.htm>

¹³ <http://www.ucm.es/BUCM/vet/ppsala05.htm>

¹⁴ Data related to periodicals can be found in the following URL: <http://alfama.sim.ucm.es/revistas/revistas.asp>

some of them request extended opening hours at exam periods and even ask for them to be extended to weekends. At this point of time it is not possible to satisfy these isolated demands due to lack of personnel; however at certain times of the year some of the on campus libraries do extend their opening hours on week days and open at weekends so that our students are able to use these centres for reading and database consultation services. On the other hand the whole university community has remote access by Internet to the electronic resources of the BUC¹⁵.

❖ **Provision of reading spaces and support personnel**

Considering the number of potential users (students, teachers and members of the ICOVM), the number of reading positions is insufficient. This is especially obvious at exam times, when the Faculty has fit classrooms out as study areas. There is a project to extend the Library which we hope will be accepted by the University academic authorities.

The Library staff includes 10 staff members, well qualified and trained in Libraries and Archives, all of them hold a University Degree (excepting support staff):

PROFESSIONAL GROUP	Nº
A: Archive and Library Specialists	1
B: Archive and Library Assistant	3
C: Library Assistant Technician	4
Support staff	2

The general reading room has two group study rooms and one audio visual room which holds up to four persons.

In the hall there are two computers for consulting the catalogue on line and in the Periodicals Room there are four computers for consulting electronic resources (databases and electronic journals). In addition, in the IT room there are 50 computers available to student users from which they can also access all the information on-line.

Since the end of 2004 the Library has wireless connection for Internet access through laptops which can be used at any point on Campus.

¹⁵ http://cisne.sim.ucm.es/screens/relectronicos_spi.html

IT facilities:

Please comment on the establishment's approach to self-learning, on the adequacy of the provisions, and on any limitations on the further developments in this area.

VIRTUAL CAMPUS¹⁶

The UCM Virtual Campus (*Campus Virtual*, CV-UCM) is a tool that supports learning, teaching, research and academic management and is permanently available to all members of the university community. CV-UCM extends the university campus services and functions using IT. All the *Complutense* teachers and students that request the service can become users. It can be accessed from any computer with an Internet connection and a web browser. Furthermore, since two years ago, the university has an extensive Wi-Fi network, which enables access from anywhere on campus using a portable computer.

The project for implementing the Virtual Campus in the UCM, a classic attendance-based university, with 26 centres and 77 degrees, grows out of our desire to offer a tool to simplify the gradual change of teacher's and student's work habits, in order to be able to adapt to the new academic and learning goals promoted by the ESHE.

The most visible part of this process is the gradual inclusion of subjects taught at the UCM in the WebCT platform (virtualisation). This inclusion has as its main goal to support teaching at the UCM, to simplify teacher-student and student-student communication, and improve the learning process giving more relevance to the student's autonomous work and to teamwork led by the teacher. Only in some specific cases, will the CV-UCM's goal be purely distance learning.

During the 2004-05 academic year, the services offered by the Virtual Campus reached the entire university community and there is now a large number of users in our Veterinary Faculty: 795 students had signed up by the 22-June-2005 (which represents 62.5% of students enrolled in the Faculty), and 96 teachers (38% of all teachers belonging to this Faculty). This is a significant increase over the previous year, which is likely to continue in the future.

Furthermore, there are already 64 subjects on-line, belonging to both the Veterinary degree and the Food Science and Technology degree. This makes us the seventh centre in the UCM with most

¹⁶ https://campusvirtual.ucm.es/SCRIPT/espacio-centro-14600/scripts/serve_home

virtual subjects, and the first in the Health Sciences area. In this area we are also leaders in student and teacher participation.

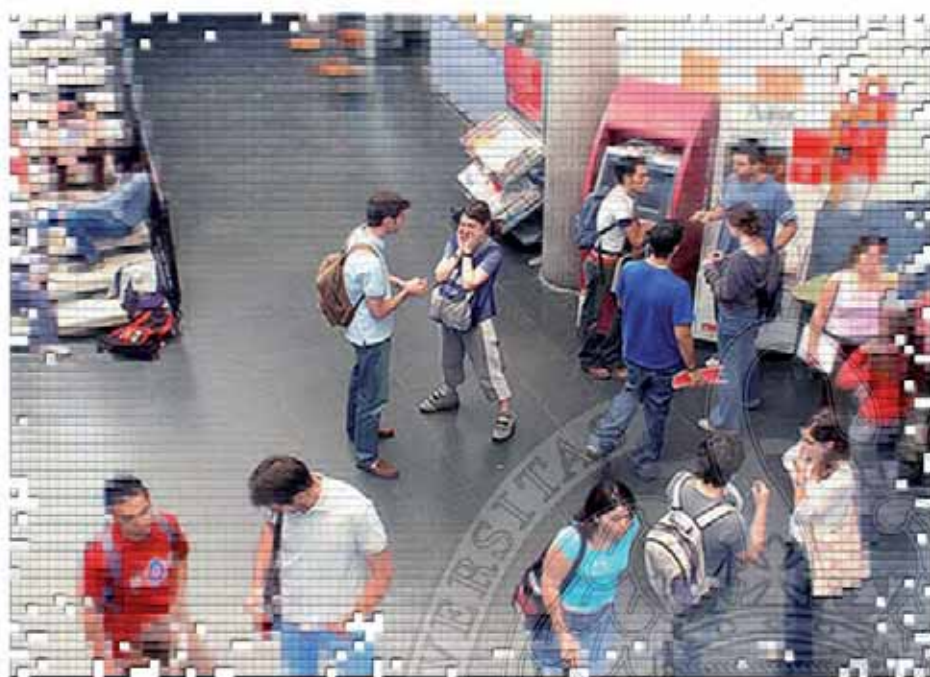
Our Library has gradually integrated with the Virtual Campus, not only with a link to its webpage, but also by participating in the forums, answering on-line queries about its services, and announcing interesting news such as user training courses or updates to its webpage.

3. SUGGESTIONS

The Library service is highly regarded by the University community. However, the following may be mentioned as areas for improvement:

- ❖ The current facilities should be expanded in all their areas: reading rooms, storerooms and work areas. In the reading rooms the number of reader positions needs to be increased as well as the shelf space to house the reader accessible stocks. In the storerooms better use could be made of the space with the installation of compact shelving which would allow both the expansion and the adequate conservation of the collection.
- ❖ Although the Faculty provides a reasonable proportion of the general budget of the Centre Library (around 11% of the global budget), in recent years the Library has seen a reduction in its purchasing power due to the progressive increase in the cost of Journals. This has forced the Library Committee gradually to unsubscribe to some of the Journals, as otherwise finally it would not be able to meet the cost. One option would be for the Faculty to cover the cost of the existing journals, independently of their possible price increases; the other option would be to increase the budget in line with the price increases.

- ❖ Since 2005 the teaching and student community of the UCM has access to very powerful information and publishing electronic resources: the *E-prints* server and the *E-libro* platform. Teachers and researchers can publish the results of their research through these two media as well as through the electronic journals edited by the UCM. The open electronic archive *E-prints* currently has more than 3,400 PhD-theses presented in the UCM, as well as articles, presentations and monographies. Since this is voluntary, the main challenge is to incorporate this editing medium into the normal publishing media of the teaching staff, and for this reason it should be given maximum recognition in curriculum terms. The situation with the *E-libro* platform is similar; it is still under used as a publication medium.
- ❖ Finally, although the Faculty Library is integrated into the Virtual Campus, all the possibilities of this as a medium of communication with the student are not yet fully exploited.



Chapter 9: ADMISSION AND ENROLMENT

CHAPTER 9. ADMISSION AND ENROLMENT

1.- FACTUAL INFORMATION

9.1. STUDENT NUMBERS (Year 2003-2004)

Table 9.1.1. Undergraduate student composition

a.	Total number of undergraduate students	1060
b.	Male students	257
c.	Female students	803
d.	Nationals	1057
e.	Foreign students	3*
f.	1st year students	170
g.	2nd year students	214
h.	3rd year students	185
i.	4th year students	141
j.	5th year students	350
k.	6th year students	
l.	7th, or subsequent year students	
m.	Students not in any specific year	

*This figure does not include Socrates/Erasmus students nor students from other non-European exchange programs, since these students do not appear in official result listings. 31 students from EU countries were received within the Socrates / Erasmus program, as well as 10 non-EU students (USA, Argentina, Mexico).

Table 9.1.2. Postgraduate student composition in PhD- Programmes

n.	Total number of postgraduate students	160
o.	Male students	81
p.	Female students	79
q.	Nationals	134
r.	Foreign students	26
	From EU countries	2
	From non-EU countries	24
s.	1st year students	98
t.	2nd year students	62
u.	3rd year students	-
v.	4th year students	-
w.	5 th , or subsequent, year students	-

Total number of students in the establishment (a + n) : 1220

9.2. STUDENT ADMISSION

State the minimum admission requirements.

Outline any selection process (or criteria) used in addition to the minimum admission requirements.

Describe whether students applying for and / or starting veterinary training have an equal or very variable knowledge base in scientific disciplines from their studies at school.

Indicate where there is a limit to the number of students admitted each year.

Describe how the number of government-funded student places is determined.

Describe any circumstances under which extra students may be admitted to the undergraduate veterinary course.

Outline any changes foreseen in the number of students admitted annually. If applicable, describe how the establishment plans to adjust to these changes.

A.- Minimum admission requirements

The Spanish Education System comprises the following stages:

- **Primary education** (compulsory, lasting six years; usually 6-12 years of age).
- **Secondary education** (compulsory, lasting four years; usually 12-16 years of age).
- **Baccalaureate** (non compulsory, two years; usually 16-18 years of age).

Depending on their preferences and future study plans, Baccalaureate students can choose between four different options:

- Arts
- Life and Health Sciences
- Humanities and Social Sciences
- Technology

There are two sub-options within the Life and Health Sciences baccalaureate: Scientific-Technical and Health Sciences. Those students wishing to take a degree in Veterinary Science must choose the Health Sciences sub-option within the Life and Health Sciences option.

- **Higher Education** (University degree)

Admission requirements for starting University Studies are established by the Ministry of Education and Science and the Autonomous Government of Madrid. To access university studies, the student, having completed the Baccalaureate, must pass the University Access Test (*Pruebas de Acceso a la Universidad*), which is the same test for all Public Universities in Madrid . There is no additional specific test to enter the Veterinary Faculty.

Access to Veterinary Studies at the UCM is regulated by a *numerus clausus* system; attending to the number of students to be admitted (165 in 2003/04) and to the number of students demanding to enter our Faculty, a certain admission mark is established. The students' access mark is calculated from the Baccalaureate average mark (accounting for 60% of the final mark) and University Access Test marks (40%). In general, the mark required to enter our Veterinary Faculty is within the 3-4 highest of the UCM (see table a.1, in "Comments"). For the academic year 2003/4, a mark of 7.21 was required (scale from 0 to 10), for 2004/5 the mark was 7.15, and the minimum mark to enter our Faculty in year 2005/06 is 7.34.

Since there are always more students with top grades applying than places available, admission of undergraduate students in our Faculty is very competitive (See Table 9.2 for further information).

B.- Selection criteria and process used in addition to the minimum admission requirements.

Applications from successful candidates in the current year June session of access tests, or in previous years, will be processed first. Taken next are applications from successful candidates in the current year's September sitting of the access tests (the latter is usually non-applicable since the available places are generally filled in June).

There is a percentage of offered places reserved for students with special situations:

1.- **Students with disabilities:** 3% of places are reserved for them. They must present an official disability certificate issued by the Social Services Institute (*Instituto de Migraciones y Servicios Sociales*, IMSERSO) or the Madrid Autonomous Community, giving a disability rating of 33% or higher.

2.- **Gifted athletes:** 1% of places are reserved for them. They must attach a certificate justifying their status issued by the National Sports Institute (*Consejo Superior de Deportes*).

3.- **Graduates in other University Studies:** 1% of places are reserved.

4.- **Foreign students:** 1% of places are reserved for students from countries outside the EU. For being admitted, they must have passed the University Access Test in the current or preceding year, by means of the Spanish Distance Learning University (*Universidad Nacional de Educación a Distancia*, UNED).

C.- Comparative level of knowledge base in scientific disciplines from studies at school of students applying for or starting veterinary training.

Prospective students must take the Health Sciences option for Baccalaureate (as stated in the Organic Law 1/1990 dated 3 October, LOGSE). Compulsory subjects in this option are *Biology* and *Chemistry*; thus, *Mathematics* and *Physics* are electives and may not have been taken.

Students tend to avoid these two subjects in favour of others, thought to be easier, in order to obtain higher marks and achieve a higher average mark in their academic record.

This can cause problems in the first year of the Veterinary degree, where *Mathematics* and *Physics* are core subjects (See section 9.3., Suggestions).

D.- Limit to the number of students admitted each year.

There is a limited student intake. Every year, the Faculty of Veterinary Science, by means of its Faculty Council, proposes the specific number of places to be offered. The Faculty then sends this proposal to the University's Governing Council, which in turn sends it to the University Coordination Committee of the Ministry of Education and Science. This body is empowered to decide, but usually accepts the Faculty's proposal. In recent years, the number of places proposed and offered has been 165 (see Table 9.2).

E.- Determination of the number of government-funded student places.

Since the UCM is a Public University, the fees that our Veterinary students have to pay are not very high (800 euros/year on average). Even so, the Education Protection Act (dated 19 July 1994, BOE 21 July) sets out indirect financial aid or *free tuition* under certain circumstances:

1. **Outstanding marks:** In the Spanish grading system, the highest possible mark is the so called *Matrícula de Honor (MH)*. For each MH obtained, the student will be able to enrol for free during the subsequent academic year in the same number of teaching credits as the ones for which he got the MH mark. In addition, students with an average grade of MH during Baccalaureate have free tuition during their first year of University Studies.
2. **Beneficiaries of a programme for large families** can have reduced or waived public fees for university studies, according to the rating within categories of families.

3. **State-funded scholars.** Students can receive a grant from the Spanish Government or the Madrid Autonomous Community, to pay the University fees (RD 2298/1983 dated 28 July, article 3.1). Those grants are given attending to the student's family income and academic records; the number of students having these State-funded grants in our Faculty in 2004/05 was 118. Orphans from Civil Servants also get free tuition funded by the State.

F.- Some circumstances under which extra students may be admitted to the undergraduate veterinary course.

Students of Veterinary Sciences in other Spanish or foreign Faculties can request a transfer of academic records. The request is made to the Dean of the Faculty, who is empowered by the Rector to accept or not, taking into account the availability of places and the average mark in the candidate's academic record. In this Faculty, it is the Credits Recognition and Transfer Committee that considers academic records and decides transfers. By agreement of the Faculty Council, an important requirement to accept the transfer is that the mark on the University Access Test results card must be at least equal to the cut-off mark required by our Faculty in the academic year in which the transfer request is made. Anyway, access to our Faculty by this way is minimal (2-3 students/year).

We also receive regularly a significant number of foreign students within official international exchange programs. Our Faculty has been very active in those exchange programs, and the number of incoming and outgoing students has been continuously increasing during the last years (see below). Our Faculty has Socrates/Erasmus agreements with 28 European Faculties of 14 different countries, and participates also in 29 student exchange programs with non-EU countries (mainly American Universities).

International exchange programs students

Academic Year	Incoming students	Outgoing students
2001-2002	28	30
2002-2003	34	32
2003-2004	31	28
2004-2005	39	30

Our Faculty also participates in the Séneca/SICUE exchange programme, which is an agreement among the Spanish Veterinary Faculties. Six centres, sited in different cities of Spain, have signed agreements with the Veterinary Faculty of Madrid, and many applications are received each year.

G.- Foreseen changes in annual intake. Adjustment to these changes.

At the moment there are no plans to change the annual student intake. In fact, the last proposal was 165, the same since 2001/2002. Thus, we can say that intake remains stable, with a slight downwards trend (in academic year 2000/2001, 170 places were offered).

Our Faculty Council would like to decrease slightly the number of admissions, getting down to 130/year. However, it is going to be difficult to achieve this goal, since we have a very high demand; besides, our University and the Autonomous Community of Madrid probably won't approve this reduction, since it would imply a decrease in their revenues derived from student's fees.

Table 9.2. Intake of veterinary students

Year	Number applying for admission 1 st option 2 nd option		Number admitted	
			`standard´ intake	Other entry mode (describe)*
2004/2005	501	73	165	3
2003/2004	564	62	165	3
2002/2003	543	72	162	3
2001/2002	608	95	162	1
2000/2001	747	122	170	3
1999/2000	832	136	170	1

* These students enter the Faculty by the Transfer of Academic Records system, and they all enter courses higher than 1st year.

9.3. STUDENT FLOW

Table 9.3.1. Student flow

Of the students whose admission year was 1999/2000, how many are at present (five years later) in the:

b.	1st year	6
c.	2nd year	6
d.	3rd year	22
e.	4th year	31
f.	5th year	38
g.	Graduated	57
h.	Dropped out or been asked to leave	5
i.	Not in any identifiable year	5

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

	Year	Number graduating
j.	2003/2004	180
	2002/2003	164
	2001/2002	180
	2000/2001	258*
	1999/2000	190

* In that year a change of syllabus was undertaken.

Table 9.3.3. Average duration of studies

	Duration of attendance	Number
k.	4 years	-
l.	5 years	57
m.	6 years	38
n.	7 years	31
o.	8 years	22
p.	9 years	6
q.	10-13 years	9
r.	More than 13 years	1
s.	Drop-outs	16
	Average duration of studies of the students who graduated in year 2003/2004	5.9

Describe the requirements (in terms of completing subjects and examinations) for progressing to a subsequent year of the course.
Describe the academic circumstances under which the establishment would oblige students to leave the course.

A.- Requirements for progressing to a subsequent year of the course.

Our Veterinary Degree comprises five years, divided in two cycles:

- First cycle : 1st and 2nd year of the degree
- Second cycle: 3rd, 4th and 5th year of the degree

In general, there are no official limitations for passing from one year to the following, but there are special requirements for progressing from the first to the second cycle. To access the second cycle, students must have passed a minimum of two thirds of first-cycle core and elective/ optional credits (97 credits in total).

There are also limitations on registering for the subject *Placements (Estancias)*: This subject, considered core subject, is taken in the years 4th (200 hours) and 5th (200 hours) of the degree. It can only be taken by students who have passed 2/3 of the core and elective/ optional credits of the third year of the degree (48 credits in total). There are no other enrolment limitations along the degree.

B.- Academic circumstances under which the establishment would oblige students to leave the course.

First year students who have not passed any core subject in the two ordinary sittings available in that academic year (june and september), will not be able to continue their studies in this Faculty. In addition, students who have used up unsuccessfully all the possible sittings for one subject (maximum of six, see chapter 5), will have to leave our Faculty .

2. COMMENTS

Comment on standard of the students starting the course.
Comment on the ability of the establishment to satisfactorily decide the number of students it can accept.
Comment on the factors that determine the number of students admitted.
Comment on the adequacy of the facilities and teaching programme to train the existing number of students.
Comment on the progress made by students in their studies, and the establishment's ability to ensure that satisfactory progress is maintained.
Comment on the percentage of students that will eventually graduate.

A.- Comments on standard of the students starting the course

In general, they are students with outstanding secondary education results. The access mark is the fourth highest in the UCM, and the highest of all the Veterinary Faculties in Spain. The percentage of students enrolled in the first-year of this Faculty which chose Veterinary Science as their first option is very high (see Table 9.2), which indicates a high level of motivation in our students.

A.1. First year access marks (Scale from 0-10)

Year	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Minimum mark required to enter the Faculty	7.27	7.29	7.22	7.21	7.15	7.34
Students average access mark	7.67	7.75	7.79	7.86	-	-
Students upper 20% access mark	8.26	8.49	8.68	8.82	-	-

B.- Comments on the ability of the establishment to satisfactorily decide the number of students it can accept.

The Faculty Council proposes the number of places, which must be ratified by the UCM Governing Council and also by the University Coordination Committee of the Ministry of Education and Science, which has the final decision. In recent years, the Faculty's proposal has been always ratified with minimal variations (± 10 places).

C.- Comments on factors that determine the number of students admitted.

We try to adapt our student intake to the availability of human and material resources and means. We also take into account the demand for Veterinary graduates in the labour market.

D.- Comments on the adequacy of the facilities and teaching programme to train the current number of students.

Although the number of students has been significantly reduced in recent years, we would like it to be even lower, to be able to reduce the size of the groups in some types of practical teaching and to implement new teaching methods.

E.- Comments on progress achieved by students in their studies, and the establishment ability to ensure that satisfactory progress is maintained.

The CSD (see Chapter 5) undertakes evaluation and monitoring of the teaching/learning process. Its meetings (which always include students) and periodical surveys carried out under the supervision of that Committee, improve our perception of the situation and the adequacy of students progress. It is also possible to analyze the latter through teachers' personal tutorials.

F.- Comments on the percentage of students that will eventually graduate.

The number of graduated students has remained more or less stable along the last 5 years. An increase in the number of graduates from our Faculty is not expected in the foreseeing future, due to the present student's intake limitations.

We consider that the yearly number of graduates from all Spanish Veterinary Faculties (approx. 1,100 in 2003) is too high for the social demand of veterinarians in our country. However, a recent representative study for evaluation of employment of veterinary graduates in Spain (for which a total of 3,514 questionnaires filled by veterinarians and 345 filled by companies of the Veterinary field have been reviewed) shows that, surprisingly, the percentage of unemployment within veterinarians is insignificant (less than 5%) and that more than 75% of veterinary graduates find a job within 6 months after graduation. However, this study also shows a high rate of laboral precariousness. In order to improve the latter and to ensure availability of appropriate employment for our veterinary graduates, we consider important to try to reduce the number of yearly graduates, and therefore it is essential to maintain or even reduce the current student intake.

G. Other comments

Our Faculty has special enrolment instructions in order to favour students with the best marks and those close to finish their studies. New students admitted in first year register during the third week of July. The rest of the students register during September, in the following order: a list of all students is published, in descending order according to the number of credits passed up to the June sitting. This list is divided into days so that the first to register are the students with most credit passed. In this way, students nearing completion of their studies have preference when choosing elective subjects with a limited number of places.

3. SUGGESTIONS

If you are not satisfied with the situation, please rate in order of importance any suggestions that you may have concerning this Chapter if you feel unhappy about:

- The number of students admitted;
- The drop-out percentage;
- The average duration of studies;
- Other aspects.

1.- Student intake.

We are gradually achieving acceptable numbers to allow good training, but it would be preferable to reduce intake slightly. What is more important is not to get forced in the future by the Ministry to increase the number of places to compensate the reduction in student numbers seen in other degrees, as a direct consequence of the current fall in population in Spain.

2.- Drop-Out Rate.

Not very significant in our case. The 'First-course Drop-out Rate' indicator includes students who have not fulfilled the requirements for continuing and also students who, for other reasons, do not re-enrol in the following two years. In our Faculty, this value is always under 10%, which falls into the average range.

The Overall Drop-out Rate can be calculated adding to the 1st course drop-out rate those undergraduate students of the rest of the courses that do not register in any subject during the following two years. This index is also quite low in our Faculty.

Drop-out Rate

Year	2001/02	2002/03	2003/04
1st course Drop-out Rate	7.6%	7.9%	6.3%
Overall Drop-out rate	10.1%	9.0%	9.1%

3.- Average length of studies.

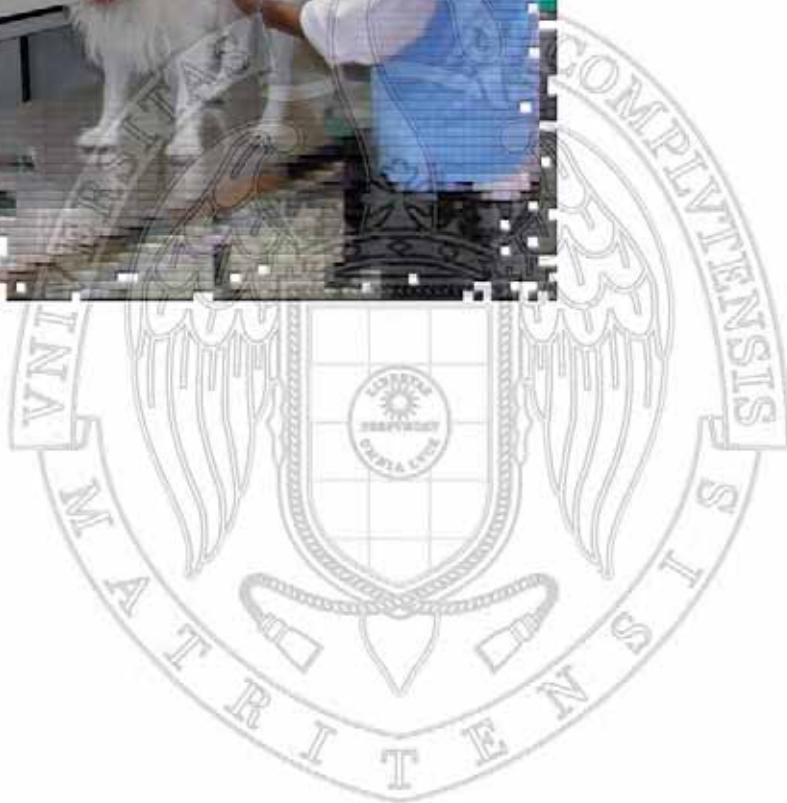
The average duration of studies is too long. Our students have a very good academic level (evidenced by the high marks required to enter our Faculty), but the current Syllabus is usually considered to have a heavy workload, which makes it difficult to finish the degree in five years.

Currently, we are in the process of modifying/implementing the Syllabus of Veterinary Medicine in our country, in order to adapt it to the Bologna Declaration. The new curriculum will probably have a reduction in the teaching workload (mainly less theoretical lectures), which will hopefully improve this situation.

Another problem that may contribute to a high workload and consequent prolongation of the studies, is the absence of important limitations for progressing to the subsequent year. This makes it possible for the students to be enrolled in many subjects of different years of the degree, which can lead to an excessive workload and can make it very difficult to attend all the programmed lectures or practicals due to timetable incompatibilities. This fact probably leads also to mistakes in the calculation of average duration of studies, because students are considered to be enrolled in the higher course, even when they have several subjects pending from lower courses. Consequently, the average duration stated in Table 9.3.3 (5.9 years) may be lower than the real length, according to previous retrospective studies which suggest that it is closer to 6.5-7 years.

4.- Level of Knowledge on admission.

We consider that the problem of *Mathematics* and *Physics* described in section 9.2.c is important. We think that these should be obligatory subjects for all Baccalaureate students in the Health Sciences option. This Faculty is trying to solve the problem offering so-called “Zero” subjects. Those are special courses taught before the beginning of the regular classes of the first year of the degree (usually during the month of september). During the present academic year (2005/06), an optional subject, *Fundamentals of Physics*, has been offered in order to enable students with an insufficient level of Physics to complete their training. In this way they can reach an appropriate level to be capable of following the subject of *Physics* once they start their veterinary studies.



Chapter 10: ACADEMIC AND SUPPORT STAFF

CHAPTER 10. ACADEMIC AND SUPPORT STAFF

1. FACTUAL INFORMATION

Table 10.1 Personnel in the establishment

Table : Personnel			
	Budgeted posts (FTE)	Non-budgeted posts (FTE)	Total (FTE)
1. Academic staff			
a) Teaching staff	238	-	238
b) Research staff	12	-	12
c) Others (please specify)	-	-	-
d) Total Academic staff	250	-	250
2. Support staff			
e) responsible for the care and treatment of animals (HCV, Farm)	52		52
f) responsible for the preparation of practical and clinical teaching	36		36
g) responsible for administration, general services, maintenance, etc.	75	2	77
h) engaged in research work	0	33	33
i) others (Library, SIMU)	12	3	15
j) Total support staff	175	38	213
3. Total Staff (d+j)			
			463

Table 10.2. Allocation of personnel to the various Departments

Name of Department	ACADEMIC STAFF (Total number)					SUPPORT STAFF (Total number)		
	CU	TU	Assistant teacher	Associate teacher	Research	Teaching	Research	Adm/Gen
Anatomy	2	8	3	1	-	3	0	1
Biochemistry and Molecular Biology IV	3	12	1	1	1	2	2	1
Animal Physiology	0	11	4	9	1	3	0	1
Food Science and Technology	5	12	5	3		2	3	1
Animal Health	4	28	6	8	9	5	16	1
Animal Medicine and Surgery	5	34	9	15		11	1	1
Animal Production	4	27	4	2		7	10	1
Pharmacology and Toxicology	3	13	1	5	1	2	1	1
Applied Physics (Dptal. Section)	0	3	2	3	0	1	0	1
HCV	*	*	*	*	Interns	24	0	19
					14			

CU (*Catedrático de Universidad*): Full professor, civil servant, full time (tenured post).

TU (*Profesor Titular de Universidad*): Associate professor, civil servant, full time (tenured post).

Assistant teacher: contracted position, full time. **Associate teacher**: contracted position, part time (several types). **Research staff**: contracted positions financed by the Spanish Government or the Autonomous Community of Madrid for highly specialized scientific researchers.

*The complete teaching staff working at the HCV are teachers from several Departments of the Faculty (mainly, from the Animal Medicine and Surgery Department, followed by the Animal Health Department and the Pharmacology and Toxicology Department), and they are computed in their respective Departments.

In addition to the academic staff listed in Table 10.2., there is a figure called Honorary Collaborator (*Colaborador Honorífico*); those are non-university professionals, who assist in the teaching of some subjects (mainly extramural practical teaching). They do not get any salary for this kind of collaboration, and their number in 2004 in our Faculty was 114.

Table 10.3: Personnel responsible for undergraduate teaching

A	Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching	238
B	Number of research staff involved in undergraduate teaching	12
C	Total number of personnel responsible for undergraduate teaching	250

Ratios

- **Ratio: teaching staff / undergraduate students**

$$\frac{\text{Number of teaching staff}}{\text{Number of undergraduate students}} = 250/1060 = \mathbf{1 / 4.24}$$

- **Ratio: teaching staff / support staff**

$$\frac{\text{Number of teaching staff}}{\text{Number of support staff}} = 250/213 = \mathbf{1 / 0.85}$$

Outline how the allocation of staff to the establishment and to the Departments is determined.
Outline how the allocation of staff to the Departments (or other units) within the establishment is determined.

Teaching staff:

The University teaching staff is made up of Tenured University Teachers (Civil Service University Tenured Teachers) and contracted teachers. In both cases the funding comes from the University and the Madrid Autonomous Government.

At the present time, the University teaching staff is regulated by the LOU 6/2001, as well as by the regulations of the Madrid Autonomous Government and the statutes of the UCM. Also applicable in the case of the clinical subject teaching in Health Sciences, is what appears in the General Law on Health (*Ley General de Sanidad*) and its applications.

Staff needs are determined by the Departments themselves, who present the request for posts to the Faculty Council; if these are approved, the Council transfers the proposals to the Rectorate of the UCM. Applications for increased or replacement staffing are approved or rejected by the University depending on the availability of sufficient funding in the budget and to the staff needs calculated by the Rectorate for each Department according to the so called UCM-Staff Document (*Documento de plantillas*). This document was drawn up by the Governing Council of the UCM, and it establishes the academic staff needs based on the number of students, teaching credits and type of practical teaching of each Department. Although data included in that Staff document are not fully determinant, it serves as a useful guide for the Rectorate to decide if the Departments' requests are adequate or not.

If the request is approved by the Rectorate and refers to Teaching Civil Servants posts (TU, CU), the Rectorate will transfer the request to the General Secretary of the University Coordination Committee, and if it is approved the post is advertised and the selection process carried out according to the national certification process (as laid down in the LOU) : the Ministry of Education announces a competitive certification process with access for teachers and/or researchers at doctorate level. The Examination committee is made up from Tenured Teachers from all over the country, chosen at random and belonging to the same knowledge area of the posts. The candidates are selected according to their teaching and research capacity / merits. The candidates who complete this certification process, may be chosen afterwards by the universities to cover their Tenured Teachers staff requirements.

When posts for contracted teachers are involved, the Rectorate deals with the recruitment and appointment process in accordance with the regulations set out in the LOU and by the Autonomous Community of Madrid : the selection is carried out through contracting committees, which have representatives of the Rectorate, the Faculty , the Departments and the trade unions.

Contracted staff have the same rights and obligations as the Tenured Teachers staff, in accordance with the law currently in force. At present there are seven different types of contracted teachers. All of them participate in the teaching activity of the Departments , according to the terms of their contract and in most cases they also carry out research activity.

Support staff:

The number and distribution of the support staff depends directly on the Rectorate, according to the needs of each Centre and Department. In this case there are also two types of support staff: Civil Servants and contracted. In both cases their financing, recruitment and contracting depends on the University. Currently there also exists a growing number of support staff involved in research, whose funding and activity is related with different types of research contracts and projects.

Indicate whether there are difficulties in recruiting or retaining staff.
Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade.
Indicate whether it is straightforward to employ additional staff from service income (e.g. from revenues of clinical or diagnostic work).

The contracting of new teachers is carried out according to the teaching needs of each Department and requests must be approved by the Faculty Council and the Rectorate. The selection system is quite competitive (it is a national competitive examination process) and there are usually many candidates for a single post. However, in recent years these contracts have not been very numerous, and it should be mentioned that the posts which become vacant due to retirements many times are not filled.

One of the problems stems from the fact that the Departments' perception of their teaching needs does not always coincide with those decided by the Rectorate. The latter recently drew up a "staff document " outlining contracting criteria in which the minimum number of students in practical groups is seven for each teacher , and that only in exceptional cases such as surgery practice; for the rest of the practice sessions the minimum number of students is considered to be thirteen or higher. Some Departments of our Faculty complain that this size is clearly too large for groups for veterinary practice work; in fact the clinical practice sessions have been given in smaller groups for years to guarantee good teaching quality (see Chapter 4).

Nevertheless, this is the base number for the Rectorate criteria for teaching staff requirements, which affects the contracting of new teachers in this Faculty and may even endanger some of the current posts and with it the excellent teacher/student ratio currently existing in this Faculty.

A positive tool for retaining academic staff at the University has been the recently approved *Teaching staff Promotion and Stabilisation Plan*, which has allowed many contracted teachers who were well qualified in teaching and research to obtain a permanent post through a public competitive recruitment process. This is a great step forward and a well deserved recognition as the former teaching staff contracts were very precarious even for those who had a good *Curriculum Vitae* and had been working for many years in the university in most cases.

However, still pending is the establishment in our University of a “teaching career” which allows the teacher to have guaranteed stability and promotion prospects in line with pre established criteria, since at present promotions depend fundamentally on vacancies occurring as the result of retirement or moves, and do not depend on merit or seniority.

Concerning staff employment from Service Income, the HCV has the capacity to contract clinical, support and administrative staff charged to its budget (so called *own proposal contracts*). The contracting system follows the same regulations and procedures as the rest of the general competitive processes for contracting administrative and support staff in the UCM.

This system has important limitations :

1. The selection of staff, including veterinarians and technical specialists in clinical activities is carried out directly by examining boards set up from the Rectorate; often, these boards do not take into account the specialist needs of the Centre and normally the clinical staff do not take part in the selection process (except in some cases where they are required to act as ‘academic assessor’ in the selection tests, but without decision making capacity).
2. This contracting mode limits the capacity for quick action; since, in most cases, these are posts which are not included in the general university catalogue because they are extremely specialised, the process has to be initiated from the creation of job vacancies listings), which prevents the contracting of staff at the moment when the Council of the HCV decides that the Centre needs a new post.

3. At present (year 2005), the HCV has the following staff contracted and charged to its own budget:
- A. Two administrative support staff: one assigned to the processing and payment Department; the other assigned 50% to the Clinical Pathology and Pathology Services.
 - B. Three veterinarians: one assigned to the large animal area, one to the small animal area, and one to central services (Anaesthesia).

In addition the HCV budget includes payments to 14 holders of the so called collaboration-scholarships (*Becas-Colaboración*), for Veterinary Graduates who carry out clinical activities in the small animal area (8 interns/residents who carry out rotations in the medicine, surgery, anaesthesia and hospitalisation services) and in the large animal areas (6 interns/residents who carry out rotations in the equine medicine, equine surgery, ruminant medicine and surgery services). The selection process for these interns/residents does depend directly on the HCV Council in accordance with objective publicised criteria tables. However, the post description of these *Collaboration scholarships* is identical for the whole of the UCM, so that some of the characteristics of their contract roles do not fit in exactly with that of a Hospital resident/intern (timetables, duty rosters, and even salary). It would be desirable to adapt this type of scholarships to the requirements/demands of a clinical Hospital like the HCV.

More independence exists for contracting staff charged to research projects or collaboration with companies since in these cases the post advertisement and recruitment is carried out by those responsible for the Project.

Describe the regulations governing outside work, including consultation and private practice, by staff working at the establishment.

Full time Teachers cannot undertake any work (consultation or private practice) outside the University except in official institutions and with the authorization of the University. Part time Teachers can do so.

Describe the possibilities and financial provisions for the academic staff to:

- attend scientific meetings
- go on a sabbatical leave

Attendance at scientific meetings is usually funded by the research projects or contracts. In addition the UCM offers specific grants for this type of activity, although the number of grants is quite limited; applications are evaluated and scored by the Faculty Research Committee for distributing the available budget amongst them.

The University has a specific programme which allows Teachers with 25 years of service to take a sabbatical year. This can also be granted when the teacher has carried out management functions in the University (Rector, Vice-Rector, Dean, Vice-Dean, Faculty Secretary or Department Director) for a period of more than four years.

Short periods of leave of absence can also be obtained for 3-6 months, to carry out specialisation periods/placements in other universities or research centres in Spain or abroad. In all cases, the rest of the teachers of the Department assume the teaching obligations of the teachers who are granted this leave of absence.

2. COMMENTS

Comment on the numbers of personnel in the various categories.

- ❖ **Academic Staff:** The number of teachers responsible for the teaching programme in the Faculty is adequate for the total number of students. In recent years there has been a stabilization of the teaching staff which has had a positive effect on specialisation and dedication to teaching and research in the Centre.

The teaching staff of the Faculty is young (average age under 45) which is positive, since this results in a high level of motivation and willingness to approach the changes which will be presented in the coming years in the context of European Convergence. However, this also has a negative side : the lack of contracting of new teachers in recent years, which will most likely be maintained in the foreseeable future, makes replacement very difficult and will lead in the future to an ageing teaching staff.

- ❖ **Support staff:** In the last five years the trend of the University authorities has been to provide the Faculties with specialised staff, especially laboratory technicians. There has been an increase in the support staff financed by the University.

It should also be mentioned as very positive that the current regulations allow the contracting of support staff funded by research projects and contracts.

Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sector.

In comparison with the private sector and even with official government sectors, the salary levels of the academic staff are lower. The high qualification required to obtain a University teaching post is not reflected in the financial rewards received. This could have a negative effect on recruitment of young professionals, who do not choose a teaching or research career option for this reason. In order to avoid this, incentives should be implemented, both in economical remuneration and in career development.

Comment on the percentage of veterinarians in the academic staff

The percentage of Veterinarians on the teaching staff of this faculty is over 70%. This figure is relatively lower in the Departments involved in the teaching of basic subjects such as *Physics*, *Chemistry* or *Biochemistry* and higher in the Departments which offer more applied subjects. The fact that all the Departments which teach towards the Veterinary degree are sited in our Faculty is a good evidence that all teaching is clearly oriented towards Veterinary Science.

3. SUGGESTIONS

The teacher/student and teacher /support staff relationships are very positive and considerably better than those in other Veterinary Faculties in Spain. Nevertheless, some situations could be improved on:

- ❖ Although the number of support staff has been slowly increasing in the recent years, it would be desirable to increase this number even more.
- ❖ As was mentioned before, contracting new teachers is not easy. The training of a University teacher requires different learning levels, both in teaching skills as well as in research terms. For this reason, and looking to the future, this process should be initiated with the time needed to ensure an excellent quality of teaching and research and this should continue with some predefined promotion structure. There should be more professional security with the establishing of a 'Teaching career structure' which would allow a better understanding of criteria and possibilities of future promotion, based on the *Curriculum Vitae* and time in service. This could help promotion prospects for Academic as well as for Support staff.
- ❖ Although contracting of researchers and support staff can be funded through research projects, it is essential to apply to the Rectorate or government for more financing to increase specialist support staff for research or clinical activities and for assistance grants to allow graduates to carry out specific tasks.
- ❖ The Post definitions/qualifications for support staff have not been updated in our University since many years, and this should be improved to adapt to the profiles to the new demands (eg it is difficult to contract veterinary nurses or technicians in the HCV because those figures are not yet included into the UCM-Support Staff Listing; on the other hand, support staff currently performing these type of clinical tasks sometimes have difficulties to get it officially recognized in their contracts).

- ❖ The participation of the Faculty, HCV or Departments in the recruitment of the support staff contracted by the University should be greater to guarantee a good match to the profile required (at present staff recruitment is decided by a committee designated by the Rectorate , with very little or no representation of the Department where the post is to be held.) More flexibility and autonomy in the appointment of staff from external income should apply.
- ❖ To be able to maintain and even improve the Teacher/Student ratio and thus the quality of veterinary training in some areas, it must be emphasized that the group size in some types of practicals needs to be very small (3-4 students/group in some cases); this is not taken into consideration by the Rectorate when establishing the teacher needs of our Faculty.



Chapter 11: CONTINUING EDUCATION

CHAPTER 11. CONTINUING EDUCATION

1. FACTUAL INFORMATION

11.1: CONTINUING EDUCATION COURSES HELD AT THE ESTABLISHMENT

Continuing education (CE) is one of the most important activities for academics to make their work accessible to professionals and general society, in terms of diffusion of research findings, updating for practitioners and social impact/knowledge of university activities.

As a consequence of the intense research and clinical work in our Faculty, it has been one of the more active and pioneers in our university regarding post graduate and continuing education possibilities for newly graduates, veterinarians and other sanitary, agricultural or environmental professions. Those CE courses are also organised by Faculty-staff outside our establishment.

Table 11.1.1: Courses organised by the establishment itself in the most recent year.

Title of course	Number of participants	Total number of hours of the course	Year
DEPT. OF BIOCHEMISTRY AND MOLECULAR BIOLOGY IV			
Detection and identification of food origin and transgenic products by real-time PCR	16	23	2003/2004
DEPT. MEDICINE AND SURGERY			
Veterinary Acupuncture	25	30	2003/2004
Clinical Anaesthesia in companion animals	60	45	2003/2004
DEPT. OF ANIMAL PRODUCTION			
Measures of genetic diversity: Analyses of introgression and assignation of anonymous samples by using multiloci genotypes	20	20	2003/2004
Diploma Certificate of Technician in Zoological Parks and Aquariums	11	99	2003/2004
DEPT. TOXICOLOGY AND PHARMACOLOGY			
How to manage avian patients: practical utilities for practitioners	10	15	2003/2004

Table 11.1.2: Courses organised by the establishment itself in the preceding year.

Title of course	Number of participants	Total number of hours of the course
Detection and identification of food origin and transgenic products by real-time PCR	16	23
Physiopathology of glutamatergic synapses	3	30
Basic course of applied phylogeny: from the sequence to the tree.	16-20	18.5
Equine medicine session AEVEE.	200	7
Veterinary Acupuncture	25	30
Small animal surgery of thorax and abdomen	12	90

Table 11.1.3: Courses organised at the establishment by student associations in the most recent year.

Title of course	Number of participants	Total number of hours of the course	Year	Organizing association
X Annual Session on Food Science and Technology	350	40	2003-2004	ALCYTA
INNOVACARNE 2005	150	20	2005	ALCYTA
Current situation of cetaceans in Spain	36	2	2003-2004	BALAENA
III Course on Orcas: current models for the study of Orca whales in the world	120	11	2003-2004	BALAENA
I and II Sessions on Anaesthesia and management of marine mammals	40-50	2	2003-2004 2004-2005	BALAENA
Biology, Physiology, behaviour, rescue of cetaceans in Spain	27	2	2004-2005	BALAENA
I Course on the bottlenose dolphin	63	11	2004-2005	BALAENA
Basic oceanography to understand cetaceans	60	2	2004-2005	BALAENA
I Practical course of shell repair in turtles	25	2	2004-2005	BALAENA
IVSA Seminars in ruminants: medicine of bull for bull-fighting	60	4	2003-2004	IVSA
IVSA Seminars in ruminants: podology in ruminants	60	4	2003-2004	IVSA

IVSA Seminars in ruminants: dairy cow management	60	4	2003-2004	IVSA
IVSA Seminars in small animals: bandages in companion animals	30	4	2003-2004	IVSA
VIII Sessions IVSA-AMVAC on paediatrics in small animals	110	15	2003-2004	IVSA/AMVAC
II Session on canine training	30	4	2004-2005	IVSA
Introduction to VETERMON and to the NGO "Veterinarios Sin Fronteras".	20	1,5	2004-2005	VETERMON
Conference on Transgenics	20	1,5	2004-2005	VETERMON

ALCYTA : *Asociación de Licenciados en Ciencia y Tecnología de los Alimentos* .Food Technology and Science Graduates Association.

BALAENA: Student Association for the Care, Protection and Welfare of Marine Mammals.

IVSA: International Veterinary Student Association.

VETERMON: Veterinarians without Borders, *Veterinarios Sin Fronteras*.

Student associations are quite active in organizing courses on veterinary and non veterinary topics (the latter are not included in table 11.1.3.). The Faculty allows them to make use of the facilities and gives them technical support at no charge, with the aim of contributing to success of such events. As a general rule, income from CE programmes is retained by the organizers of the programme, while payment for lecture theatres and other Faculty equipment used for courses is paid to the Faculty. In many cases, relevant specialists from Spain or abroad participate in these courses organized by student associations.

Indicate the involvement of teaching staff at the establishment involved in continuing education organised by outside organisations.

Teaching staff at our Faculty is very frequently involved in continuing education activities organized by outside organizations. This is mainly the result of the good relationship existing among our academic staff and the different professional associations / public bodies / private companies, etc.

Table 11.1.4: Courses organised at the establishment by outside bodies in the most recent year.

Organizing institution	Title of course	Number of participants	Total number of hours of the course	Year
Hospital La Paz	Practical Course of Laparoscopic surgery	12	31	2003-2004 2004-2005
Laboratories Esteve	Inhalatory anaesthesia clinical session	25	10	2003-2004
Schering-Plough	Respiratory diseases in cattle (12 courses)	10/course	8/course	2003-2004
AMVAC	Dermatology Clinical Cases	110	8	2004-2005
AMVAC	Update in cardio-respiratory disorders	124	8	2003-2004
AVEPA	I Feline Dermatology Session	50	8	2003-2004
AVEPA	V Session of veterinary technicians	50	8	2003-2004
AVEPA	Continuing education: head and neck	50	8	2003-2004
AVEPA	Continuing education: abdomen	50	8	2003-2004
AVEPA	Continuing education: neurology	50	8	2003-2004
AVEPA	Continuing education for veterinary technicians	50	8	2003-2004
AVEPA and GECAR	Updating in acquired cardiopathies of dogs	50	8	2003-2004
AVEPA	Interactive sessions on Veterinary. Ophthalmology	50	8	2003-2004
AVEPA	Continuing education for veterinary technicians	50	8	2004-2005
AVEPA	Continuing education: Cardiology	50	8	2004-2005

AVEPA	Continuing education: Ophthalmology	50	8	2004-2005
AVEPA	Continuing education: Emergencies	50	8	2004-2005
ESAVS	Intensive course on Emergency Care I	25	40	2004-2005
College of Veterinarians of Madrid	Food Safety	40	300	2003-2004 2004-2005
Municipal School of Continuing Education (Municipality of Madrid)	Food analyses by enzyme-immunoassay	12		2004-2005

AMVAC : *Asociación Madrileña de Veterinarios de Animales de Compañía*. Companion Animal Veterinarians Association of Madrid.

AVEPA: *Asociación de Veterinarios Especialistas en Pequeños Animales*. Small Animal Specialist Veterinarians Association.

GECAR: *Grupo de Especialistas en Aparato Cardiorrespiratorio*. Cardiology and Respiratory Medicine Specialists Group.

ESAVS: European School for Advanced Veterinary Studies.

11.2: DISTANCE LEARNING (INCLUDING VIA INTERNET)

If the establishment is involved in providing distance learning, please outline the nature and volume of this work.

Our Faculty is not formally involved in other distance learning via internet than what is referred to in chapter 8. Nevertheless, cooperation with other institutions as for example MAPA has produced some material for on-line teaching (for example simulations of list A diseases outbreaks or electronic manuals). Additional information: www.mapya.es

In the next academic year, we will also offer a distance learning course for undergraduate students and veterinarians through a Clinical Medicine Journal (*Consulta de Difusión Veterinaria*).

2. COMMENTS

Comment on the quality of the continuing education programmes in which the establishment is involved.

Comment on the degree of participation of veterinarians in the continuing education programmes in which the establishment is involved.

There is a huge activity from our teaching staff outside the faculty in terms of continuing education not only for veterinarians but also for other professions. The main reason for this is the wide spectrum of research and teaching activities developed in our Departments, and the good relationship of our academic staff with external professional associations and bodies, like:

1. Professional Associations (Official Veterinary Colleges), small or large animal practitioners associations (AMVAC, AVEPA, AEEVE, ANEMBE, ESAVS)
2. Other Research Institutions (*Estación Biológica de Doñana*, CSIC, *Instituto de España*, INIA, ISC III, *Laboratorio Central Veterinario...*)
3. Administration (*CAM*, *Junta de Castilla La Mancha*, Madrid City Council, MAPA, etc) even from overseas (Chile, Hungary)
4. Pharmaceutical Industries (*Laboratorios Esteve*, *Schering Plough*, *Farcovet*, *Pfizer*, etc)
5. Human Hospitals (*La Paz*, *Puerta de Hierro*, *Hospital Central de la Defensa*)
6. Zoological Parks and Wildlife Rehabilitation Centres (*Zoo-Aquarium de Madrid*, *GREFA*, *Brinzal*)
7. Universities (*Navarra*, *Córdoba*, *Las Palmas*, etc), even from overseas (Mexico, Chile, Argentina). And other Faculties in our University (Medicine, Pharmacy)

The provision of those CE programmes is a useful way to build up and strengthen relationships with all those external Institutions and practitioners and to collect feedback from veterinarians working outside the Faculty. In addition, it is worth mentioning that the courses offered are related not only to the classical veterinary topics (clinics, animal production and food science), but also to new developing topics such as environmental subjects, wildlife, implications of veterinarians in public health and food safety (from pest control, to food traceability) and many others.

3. SUGGESTIONS

- ❖ New laboratories and conference/class rooms, as well as some other facilities (experimental farm, food processing unit) are being constructed or remodelled. These new resources will be optimised by using them not only for undergraduate teaching, but also for continuing education to reinforce participation of our Faculty in this socially demanded activity.
- ❖ Professional Associations, Administration, private companies, veterinary practices, etc., should emphasize the need for veterinarians to keep updated in their expertises by recognizing and establishing continuing education as a part of the professional curriculum.
- ❖ Teaching staff from outside the faculty, particularly from international origin, is still scarce, most probably due to insufficient budgets. Future improvement of such aspect is a must. Also, the expansion of continuing education programmes focused on overseas students should be taken into account for future interventions.
- ❖ Participation of veterinarians in CE-courses in Spain may not be as high as in other UE countries. This is probably due to the fact that in our country it is not compulsory to carry out CE hours to practise. Undertaking CE-courses is thus optional and therefore, it is only done by veterinarians with a high interest in keeping themselves updated or in increasing their knowledge in certain areas.
- ❖ Nationally structured continuing veterinary education should be provided on a collaborative basis with educational and professional groupings working to deliver relevant and needed courses in an efficient way.



Chapter 12: POSTGRADUATE EDUCATION

CHAPTER 12. POSTGRADUATE EDUCATION

1. FACTUAL INFORMATION

Several types of Postgraduate Education are offered at our Faculty:

12.1. TESINAS (RESEARCH WORK)

Just after degree, students can access to the so called *tesinas* (literal translation “small Thesis”) consisting mainly in original research or, less frequently, a bibliographic revision work on a particular topic with a usual duration of one year. These works are supervised and directed by members of the Academic Staff of the Faculty. Students wishing to start PhD studies are commonly involved in these works as an introduction to research. Once finished, the work done is presented to a Commission of three experts in public session and, after approval, a special mention is introduced in the degree diploma. Seven *tesinas* were presented during last course; they all obtained the maximum score.

However, writing a *tesina* as a way of getting introduced to research is being abandoned and progressively changed by the more recently introduced Diploma of Advanced Studies (*Diploma de Estudios Avanzados* -DEA-), (see 12.3).

12.2. POSTGRADUATE CLINICAL TRAINING (INTERNS AND RESIDENTS)

Indicate whether students involved in this training receive a grant or salary.
Indicate any programmes that are certified by a European Speciality College.

- ❖ Our Clinical Department and the HCV offer a total of 14 internships for veterinary graduates, both in small (8 interns) and in large animals (6 interns). Those internships last 3 years: interns do rotations in most of the clinical services of the HCV, namely Medicine, Surgery, Anaesthesia, Emergencies and Hospitalisation. Interns actively collaborate in all clinical duties (including 24h guard duties at the HCV Emergency Service) and receive additional postgraduate training by means of seminars, rounds, etc., always under the supervision of senior clinicians.

Candidate's selection for these positions is made based on the applicants' *Curriculum Vitae* and a personal interview. Interns' salary is paid from the HCV income.

- ❖ Although there are several Diplomates of European Specialty Colleges in our Faculty / HCV, currently there are no European Specialty Colleges' residency programmes running. However, the Faculty / HCV offers a very complete internship programme (lasting 3 years and including rotations through the different clinical services), both in Small and Large Animals (8 and 6 places respectively), which leads to an official *Complutense* Qualification.
- ❖ Training-periods for Private Practitioners at the HCV.
The HCV offers private practitioners the possibility to come and stay in a service or specialty of their interest for a three-month period, to encourage permanent training in whatever activities are being carried out. These short term placements promote postgraduate continuing education and interaction between practitioners and HCV-clinicians. The HCV currently has a long waiting list of vets interested in these clinical placements.

12.3.: OFFICIAL POSTGRADUATE COURSES TAUGHT AT THE VETERINARY FACULTY

Do students involved in this training receive a grant or a salary?
Indicate the extent to which training towards a diploma is combined with clinical training.
Indicate the percentage of graduating students who follow such training.

Under this section we will describe the Official Postgraduate Qualifications from the UCM (*Títulos Propios de la UCM*). These are specialised courses aimed at postgraduates wishing to complete their academic training, organised and taught by our Faculty, with official recognition by the UCM.

These *Títulos Propios UCM* comprise three types of courses:

- ❖ Master (*Magister Universitario*): The Master degree is achieved after a period of 500 hours of postgraduate studies (50 credits), this including both theoretical and practical teaching. It usually takes 2 years to complete.

- ❖ Specialist (*Especialista*): A minimum of 300 hours of training must be fulfilled, usually lasting 1 year.
- ❖ Expert (*Experto*): Comprises a minimum of 250 hours of training, usually lasting 1 year.

For obtaining the final postgraduate certification, students must not only attend the lectures but also pass a final examination.

In the last two years, two Specialist, one Expert and one Master courses were taught in our Faculty. In addition, teachers from our Faculty took part in one Master and one Specialist courses taught at the Medicine Faculty of the UCM.

The *Master in Etology and Animal Welfare* is focused in qualifying veterinarians in topics related to companion animal behaviour as to guarantee the adequate management and care for animals showing behavioural disorders. The course comprises 200 hours of theoretical learning and 380 of practice.

The course termed *Specialist in Veterinary Odontology and Maxillofacial Surgery* introduces students into the basics of these topics, followed by a comprehensive approach to the main pathologies of the oral cavity in domestic animals. The course comprises 90 hours of theoretical learning and 210 of practice.

The course on *Traumatology and Orthopaedic Surgery in Companion Animals* is divided in two parts: the first one is devoted to a general approach to orthopaedic surgery in companion animals; the second one deals with the most important diseases of the forelimb, head, and spine as well as the more recent advances in osteosynthesis surgery. The course comprises 138 hours of theoretical learning and 182 of practice.

The course *Expert in Small Animal Medicine* offers veterinarians the possibility of getting updated and increase their knowledge in different Medicine specialties (oncology, neurology, cardiology, etc). It comprises 145 hours of theoretical and 120 hours of practical training.

Table 12.3: OFFICIAL POSTGRADUATE COURSES TAUGHT

TITLE	TYPE	DURATION (credits)	YEAR	Nº STUDENTS
COURSES ORGANISED AND TAUGHT AT THE VETERINARY FACULTY				
Traumatology and Orthopaedic Surgery in Companion Animals	Specialist	32	04-05	12
Small Animal Medicine	Expert	26,5	03-04	23
Veterinary Odontology and Maxillofacial Surgery	Specialist	30	04-05	12
Etology and Animal Welfare	Master	58	03-04	30
COURSES TAUGHT AT OTHER UCM-FACULTIES WITH PARTICIPATION OF DEPARTMENTS OF THE VETERINARY FACULTY				
Professional Specialisation in Pharmaceutical Medicine (Faculty of Medicine UCM)	Specialist	30	03-04 04-05	30
Forensic Sciences (Faculty of Medicine UCM)	Master	50	04-05	20

A total number of 77 students were enrolled in these official postgraduate courses. They do not receive any salary during the courses (they actually pay for enrolment).

12.4: POSTGRADUATE RESEARCH PROGRAMMES (PhD).

For each (a), (b), and (c), please indicate:

- whether the students require a grant or salary
- the proportion of graduates who enter such a programme

Our Faculty organises one main PhD programme called Veterinary Science (*Ciencias Veterinarias*), which includes seven Faculty Departments (Table 12.4.1.). Some Departments also participate in programmes shared with other Faculties (Medicine, Biological Sciences – Zoology and Pharmacy, Table 12.4.2.). Design and proposal of contents, schedules, etc. for PhD studies are responsibility of those Departments involved in the programme, with a general coordination and supervision from the University through the PhD Studies Committee (*Comisión de Doctorado*).

PhD Programmes do include two main periods, followed by completion of the Doctoral Thesis:

1. *Teaching Period*: During this period, students must take and pass 200 hours of theoretical and practical teaching in officially approved PhD-courses (table 12.4.1.). Afterwards, students can start the so called *Research Period*, during which they have to carry out 120 hours devoted to a particular research project, most frequently coincident and a part of their Doctoral Thesis. The final stage of this *teaching period* is an examination in a public session in front of a Specialists Committee (all three Committee members must have a PhD degree, the chairperson must be a Full Professor and one member must be an external examiner). This Committee evaluates the research work done, and, if appropriate, the student will receive the Diploma of Advanced Studies (*DEA*), which implies the recognition of Proficiency in Research.

All these (PhD course and research project leading to DEA) usually takes 2-3 years to complete for a full time student.

2. *Doctoral Thesis*. The student has to carry out a whole original research project under the direction of a Faculty teacher (with PhD degree) or, alternatively, an external PhD. Once it is finished, the PhD-Thesis must be submitted for approval to the University PhD Studies Committee (*Comisión de Doctorado*) and it must also receive five positive evaluations from external and internal experts. After passing all these steps, the work must finally be presented and approved by a Commission of five specialists in a public session.

12.4.1. PhD COURSES OFFERED WITHIN THE PhD PROGRAMME VETERINARY SCIENCE

The Faculty Departments offering these courses are:

- Anatomy
- Animal Health
- Animal Medicine and Surgery
- Animal Physiology
- Animal Production
- Food Science and Technology
- Toxicology and Pharmacology

COURSE TITLE	CREDITS	STUDENTS ENROLLED
DEPARTMENT OF TOXICOLOGY AND PHARMACOLOGY		
PHARMACOLOGIC STUDY OF DIGESTIVE SMOOTH MUSCLE	4,0	3
COMPARATIVE PHARMACOKINETICS	4,0	7
PHARMACOTHERAPEUTIC PARTICULARITIES OF RUMINANTS	4,0	6
EMERGENCY TREATMENT OF COMMON INTOXICATIONS IN SMALL ANIMALS	4,0	5
TOXICOLOGICAL EFFECTS OF ANIMAL VENOMS	4,0	3
NEUROTOXICOLOGY	4,0	4
VETERINARY LEGAL CONSULTORY AND RESPONSIBILITY	4,0	6
PHARMACOTHERAPEUTIC ASPECTS OF AVIAN MEDICATION	4,0	6
FOOD TOXICOLOGY	4,0	4
HORMONAL TREATMENTS IN ANIMAL REPRODUCTION PROTOCOLS	4,0	7
<i>IN VIVO</i> AND <i>IN VITRO</i> TOXICITY ASSAYS FOR THE RISK EVALUATION OF CHEMICALS	4,0	5
VETERINARY CLINICAL PHARMACOLOGY	4,0	8

DEPARTMENT OF ANIMAL PHYSIOLOGY		
NITRIC OXID PHYSIOLOGY	5,0	3
INVERTEBRATES BIOLOGY	4,0	3
BIOLOGY AND BREED OF WILD FOWL	4,0	4
ENDOCRINE BASIS OF ANIMAL PRODUCTION	4,0	9
BASIC PRINCIPLES FOR THE USE OF ANIMALS IN INVESTIGATION	4,0	11

DEPARTMENT OF ANIMAL HEALTH		
TRANSMISSIBLE DISEASES OF WILD AND EXOTIC ANIMALS	3,0	10
EMERGING INFECTIOUS DISEASES IN THE MEDITERRANEAN AREA	4,0	3
MOLECULAR AND CELLULAR PATHOGENESIS OF MICROBIAN INFECTIONS	4,0	4
APPLIED IMMUNOLOGY	6,0	13
CLINICAL MICROBIOLOGY	4,0	3
APPLIED ENTOMOLOGY	3,0	2
INTRODUCTION TO TECHNIQUES IN CLINICAL MICROBIOLOGY AND PARASITOLOGY FOR THE DIAGNOSIS OF INFECTIOUS AND PARASITIC DISEASES	10,0	15
CONTROL OF TRANSMISSIBLE DISEASES IN BEES	3,0	3
INFORMATIC PROGRAMMES IN EPIDEMIOLOGIC INVESTIGATION	3,0	4
INTEGRAL BIOSECURITY	4,0	11

DEPARTMENT OF MEDICINE AND SURGERY		
SMALL ANIMAL MEDICINE	3,0	7
BIOTECHNOLOGY OF ANIMAL REPRODUCTION	4,0	20
SURGERY AND SUPPORT DISCIPLINES (ANESTHESIOLOGY AND DIAGNOSTIC IMAGING)	4,0	18
VETERINARY COMPARATIVE PATHOLOGY. APPLIED INVESTIGATION METHODS	4,0	9
VETERINARY ROLE IN BULL FIGHTING	4,0	7
UPDATING IN ANESTHESIOLOGY	3,0	13
INSTRUMENTAL TECHNIQUES IN CLINICAL PATHOLOGY	3,0	3
PATHOLOGY AND MANAGEMENT OF GENETICALLY MODIFIED MICE	4,0	3

DEPARTMENT OF ANIMAL PRODUCTION		
ANIMAL BIODIVERSITY MANAGEMENT AND ANALYSES	4,5	6
ADVANCES IN FOOD AND COMPANION ANIMAL NUTRITION	5,0	2
PROBIOTICS AND ENZYMES IN ANIMAL NUTRITION	4,0	2
ANTINUTRITIVE FACTORS IN LEGUMINOSES	3,0	2
FATS IN ANIMAL NUTRITION	4,0	3
WELFARE AND PRODUCTION IN ANIMALS	3,0	7
ANIMAL GENOMICS	4,5	6
AGRICULTURAL POLICY	3,0	9
LAMB NUTRITION AND PRODUCTION	3,0	
PASTURES CONSERVATION AND EVALUATION METHODS	5,0	2
APPLIED BIOSTATISTICS IN VETERINARY SCIENCE	3,0	5

DEPARTMENT OF ANATOMY		
MUSCULAR GROUPS IN CARCASSES FROM FOOD ANIMALS	4,0	1
APPLIED ASPECTS OF AVIAN ANATOMY	4,0	2
EMBRYOLOGY AND ANATOMY OF FISHES	3,0	1
REGULATORY GASTRULATION MECHANISMS IN VERTEBRATES	3,0	1
SURGICAL APPROACHES IN SMALL ANIMALS	5,0	5
CONGENITAL MALFORMATIONS IN DOMESTICS ANIMALS	3,0	2
APPLIED METHODOLOGIES FOR THE STUDY OF THE NERVOUS SYSTEM	5,0	2
DEVELOPMENTAL BIOLOGY IN VERTEBRATES	6,0	2
VASCULAR ANATOMY OF DOMESTIC MAMMALS: MACRO AND MICROVASCULARIZATION	5,0	2

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY		
ADVANCES IN BIOCHEMISTRY, MICROBIOLOGY AND TECHNOLOGY IN VEGETAL FOODS	5,0	9
QUALITY ASSESMENT AND ELABORATION OF FOODS FROM ANIMAL ORIGIN	5,0	10
FOOD HYGIENE AND PUBLIC HEALTH	5,0	10
BIOLOGIC AND INSTRUMENTAL METHODS IN FOOD ANALYSES	5,0	13

12.4.2. POSTGRADUATE PhD PROGRAMMES (other than VETERINARY SCIENCE) WITH PARTICIPATION OF DEPARTMENTS OF THE VETERINARY FACULTY

POSTGRADUATE RESEARCH PROGRAMME: BIOCHEMISTRY AND MOLECULAR BIOLOGY		Nr. enrolled	
DEPT. BIOCHEMISTRY AND MOLECULAR BIOLOGY IV		*Full time	**Partial time
Topics:	Credits		
1. Experimental Hematology, from Biology to Clinics	3	--	3
2. Nucleotides and nucleosides as extracellular messengers	4	4	2
3. Molecular physiopathology of glutaminergic synapses	3	2	1
4. Molecular data bases and bioinformatics analyses	3	6	6
POSTGRADUATE RESEARCH PROGRAMME: NEUROSCIENCES			
DEPT. TOXICOLOGY AND PHARMACOLOGY			
Topics:	Credits		
Neurotoxicology	4	2	8
POSTGRADUATE RESEARCH PROGRAMME: PHYSIOLOGY DEPT. ANIMAL PHYSIOLOGY			
Topics:	Credits		
Animal and human behaviour from a ethological perspective	3	-	7
Physiology	3	-	8
Ethics and basis of Experimentation	3	3	-
Nitric oxide physiology	3	3	-
Basic principles for the use of animals in investigation	3	3	-

*Full time: doctoral thesis is being done at the Department.

**Partial time: students just enrolled in courses.

ADMISSION CRITERIA FOR STUDENTS IN PhD PROGRAMMES

- ❖ Students must have a Degree in Veterinary Medicine or in other Health Sciences (Medicine, Pharmacy...), Experimental Sciences (Biology, Chemistry), Agricultural Sciences or Food Sciences related Degree.
- ❖ *Curriculum vitae* (special attention to grades obtained during Degree plus extra-curricular activities)
- ❖ Each student has to be admitted by one Department for the development of an original research work under supervision of a teacher with PhD degree.
- ❖ Applications from grant holders and non PhD teachers from Faculty Departments will receive special attention.
- ❖ Maximum number of students admitted for enrolment in PhD Courses: 150 /year.

- ❖ Maximum number of students admitted for enrolment in Research leading to DEA: 139/year (Variable)

QUALITY MENTION

The PhD programme *Veterinary Science* has achieved the “Quality Mention” (*Mención de Calidad*) by the Spanish MEC after positive evaluation by the ANECA. Annual renewals have been approved twice (for 2005 and 2006) and it passed a comprehensive auditory in June 2004.

Since the obtention of the Quality Mention and after the positive evaluation and auditory (June 2004) by the ANECA, the Research Programme *Veterinary Science* has experienced a significant increase in student enrolment. So, we have passed from 67 PhD students in 2000-2001 to 140 in 2004-2005. Also, such Quality Mention has notably promoted the interest of PhD students from other countries and Universities in our PhD-programme. In 2004-2005, 36 out of 140 PhD students came from other Universities. In addition, thanks to the grants given to the programmes holding this Quality Mention, researchers from other Universities and Research Centres (both spanish and foreigners) have been invited to participate in the Research Programme as lecturers.

One of the strengths of our PhD-programme *Veterinary Science* is its multidisciplinary approach and contents, with nearly all Faculty Departments participating. This makes it possible to offer PhD students research and education, not only on classical “veterinary” subjects (purely clinical), but also in other veterinary related areas like: public health (zoonoses, foodborne diseases), environment (residues, manure), food science (food technology and hygiene) and some other veterinary-related topics.

Veterinary Science PhD programme enrolment				
00-01	01-02	02-03	03-04	04-05
67	124	125	138	140

In the last five years, a total number of 114 Doctoral Thesis have been presented and approved, twelve of them also achieved the *Doctor Europaeus* Diploma.

Number of Doctoral Thesis approved by year				
00-01	01-02	02-03	03-04	04-05 (June)
17	18	19	35	24

2. COMMENTS

Comment on the number of postgraduate diplomas/ titles awarded annually.
Comment on the percentage of veterinarians participating in postgraduate research training programmes.

A high number of PhD-Thesis are presented and approved yearly, and the number of students enrolled in postgraduate studies is increasing every year. This in accordance with the good position that our Faculty occupies in Research within our University (see chapter 13). Approximately 90% of our PhD students are veterinarians.

3. SUGGESTIONS

- ❖ It has been proposed that agreements with other institutions, such as the MAPA, MEC, INIA or CAM, should be established to allow the implementation of postgraduate education through courses focused in veterinary officers and agricultural-related personnel.
- ❖ An international scope must be incorporated into the postgraduate teaching in our school, taking into consideration the increasing interest of Latin American graduates for carrying-out PhD studies in Spain. Agreements with the Spanish Agency for International Cooperation on this regard should be established and reinforced.
- ❖ Our Faculty/HCV should develop a programme of clinical residencies in selected areas, in accordance with the guidelines of the European Board of Veterinary Specialisation. Recognition of such Postgraduate clinical training positions as legitimate training posts by our University may help to achieve that goal.



Chapter 13: RESEARCH

CHAPTER 13. RESEARCH

1. FACTUAL INFORMATION

A. RESEARCH FOR UNDERGRADUATE STUDENTS

Indicate the involvement of undergraduate students in research, including the time spent percentage of students involved and outcome required.

In this Centre there are four officially recognized systems through which undergraduates can gain experience in research:

1. Financial assistance for students with excellent academic records.
 2. Collaboration scholarships.
 3. Preprofessional extramural practice: Placements
 4. Research recognized as optional credits.
-
1. The Education Department of the Autonomous Government of Madrid offers grants for students with excellent academic records. Those students, who reach the UCM with an excellent pre-university academic record as well as maintaining an average mark of 8 or above, must justify 50 hours of work per year in a research project or in tasks of academic collaboration. Where the first option is chosen they must be tutored by a teacher who is undertaking a research project with public funding. Students must present the proposed working plan (approved by the supervising tutor) to the General Directorate of Universities and Research. Once the work is completed a certification that verifies that the research tasks planned have in fact been carried out must be submitted to this same Office. During the academic year 2004/05 eleven students from this Faculty were awarded these grants and nine of them carried out the 50 hours work in research activities.
 2. The MEC, through the Secretary of State for Education and Universities, invites applications each year for what are known as Collaboration- Scholarships. The aim of these is to enable students in the final year of their university degree to offer their collaboration in the Departments (within a timetable compatible with their studies), in this way initiating research activity directly linked to the studies they are taking.

To request these scholarships, the student must present a collaboration proposal supervised by the tutoring teacher, with the approval of the Department Council where it is going to take place. The student will collaborate for 15 hours per week throughout the duration of the scholarship (total 450 hours). During the academic year 2004/05 15 collaboration scholarships were awarded in our Faculty. The grant amounts to 2,341 euros per year.

3. In the syllabus there are two core subjects called *Placements* in the fourth and fifth years in which students have to carry out extramural activities related to their Veterinary studies. These subjects enable students to take part in research activities if they so wish as the choice of destination for the placement is completely personal and voluntary. Each Placement is worth 10 credits, with each credit representing 20 hours. This means that each subject involves 200 training hours, which will be spent on research tasks for those students who complete them in research centres or institutes. More detailed information on these placement subjects can be found in Chapter 4 (section 4.3.). In the last academic year 26 students out of a total 354 completed these placements in centres devoted to research including *ICSA, CNIO, INIA, etc.*
4. The official university syllabus must include as optional subject areas, not less than 10% of the total course load (RD 1497/1987, article 7th). The regulation for obtaining optional credits in the UCM includes the possibility of obtaining these with tutored training activities ; this is the case with directed academic work, training collaboration with departments, active participation in scientific congresses, courses, seminars, sporting and cultural activities. Within this section of undergraduate research, the possibility should be pointed out of obtaining optional credits through active participation in scientific congresses and collaboration with the departments through the figure of the “internal student”.

In relation with the active participation in scientific congresses, over the last four years this Faculty has organised the *Veterinary and Biomedical Sciences Congress*. In this Congress work carried out by students in collaboration with their teachers is presented, and for this the students obtain optional credits. Participation of students in this congress has been outstanding and continuously increasing since its creation (388 students in 2002, 420 in 2003 and 405 in 2004). In the last congress (2005) 128 oral presentations and 43 posters were presented, with the participation of 605 students.

In addition, in the last two years other Spanish universities have organised the *European Undergraduate Research Congress for Health Sciences* with a similar profile to the above and which our students also took part in. The regulations for recognizing optional credits at the UCM include a table of equivalences which states the number of credits available per project, according to how many authors are involved.

The “internal students” are those who during at least one complete academic year carry out non-remunerated teaching or research collaboration work in a department. For these credits to be recognised, a certificate has to be obtained from the Department Council which accredits the collaboration and indicates the activities carried out, and the credits proposed. The Vice-Rector for Studies will evaluate the documentation and emit a report with the number of optional credits recognised. Out of the 138 internal students in the academic year 2004/05, 39 took part in research work.

In addition to these four mechanisms for taking part in research which are officially recognised for curriculum purposes, it is also quite clear that students can take part voluntarily in any of the numerous research projects which are underway in this Faculty.

Undergraduate research academic year 2004/05	N° of students involved	Total n° of student hours per course
Student grant for excellent academic record	9	50
Collaboration scholarships.	15	450
Placements in Research centres	26	200
Optional credit recognition: Congress work.	605	Variable
Optional credit recognition: internal students in research.	39	Variable

B. FACULTY RESEARCH

In 2003, the Veterinary Faculty of the UCM generated more than six million euros in research funding resources. Our Faculty is ranked the second within the University in terms of generating research funding, through regional, national or European projects, as well as through agreements with companies, organisms and institutions (*Memoria de Investigación de la UCM 2003*, <http://www.ucm.es/info/vinvest/Memoria/MemCentro.htm#Veterinaria>).

It must be considered on this regard, that our Faculty's general budget represent no more than 4.37% of the UCM general budget, whilst in terms of research funding generation in the UCM, our Faculty climbs up to 13.1%. As an overview, at least 25 research groups have achieved the requirements for excellence under UCM criteria during 2004. In that year, 11 graduates obtained official research scholarships from UCM and MEC, plus an equal number of scholarships funded by research agreements with private companies. Twelve post-doctoral researchers have been hired in the past three years through the National Programs *Ramón y Cajal* and *Juan de la Cierva*. About 60 new research projects were granted during 2004, plus about 120 agreements with institutions through the article 83 of the LOU. Regarding results from research activities, more than 150 articles were published in indexed journals, 120 in non indexed journals and more than 40 contributions to books and monographies were also published. From October 2004 to June 2005, 24 Doctoral Thesis have been approved in our Faculty.

2. COMMENTS

Comment on the opportunities for students to participate in active research work.

- ❖ Research activities are a milestone of our faculty. For this reason, opportunities for getting involved in research are given to our students through all the mechanisms described above. In fact, it is not unusual to find more than one applicant for one single offer. If this happens, candidates are selected mainly on the base of their academic records, since these will also be a critical factor if they want to apply later for postgraduate scholarships.
- ❖ Students are particularly enthusiastic about the Veterinary and Biomedical Sciences Congress. They find themselves encouraged by the challenge of showing their classmates, but also to their teachers and general public, the result of their own work.
- ❖ A very important tool for introducing students in research is the new Complutense Institute for Animal Health (ICSA), sited in our Faculty and dedicated to scientific research and technology transfer in the area of Animal Health and the Agrifood Industry. Among its general objectives are to create programs to stimulate research and technological development within the Agrifood Area, to promote the transfer of new technology for the agriculture and food sector as a whole and to produce and disseminate scientific research information by seeking the maximum collaboration with the public and private sector. The infrastructures include a modern level 3 bio security unit which will play an important role in the continuous monitoring of the animal health situation in Spain. Even though ICSA does not estructureally form part of the Faculty, the Institute will play an important role in Veterinary post-graduate training, organizing teaching activities and post-graduate courses regarding the new demands of ESHE.

3. SUGGESTIONS

Will students be given more opportunity to participate in research activities?
If so, how will this be done?

In the opinion of the teaching staff of the different Departments, the reinforcing of student participation in research tasks is important, especially in view of the considerable research activity in this Faculty.

To achieve this, the following measures are proposed:

- ❖ The number and financial amount of collaboration scholarships should be increased.
- ❖ Open houses should be held where the research groups can explain their ideas and projects to other students.
- ❖ The *Veterinary and Biomedical Sciences Congress* should be maintained and encouraged.

There are, however, problems to achieve these goals due to the lack of support staff and laboratory technicians devoted to research. In addition, students find it difficult to carry out tasks which are not included in the syllabus as a result of the considerable study load which forces them to spend almost all their available time attending theoretical and practical classes and in personal study to pass their exams.



Annex I : Centres offered for *Placements*

SMALL ANIMAL CLINICS

- Abrantes C.V.
- Albeitar C.V.
- Alberto Alcocer C.V.
- Alcobendas C.V.
- Aluche-Las Aguilas C.V.
- Amasvet C.V.
- Amiguitos C.V.
- Arganzuela C.V.
- Argos C.V.
- Argüelles C.V.
- Arturo Soria C.V.
- Asturcón C.V.
- Avenida de Valladolid C.V.
- Ayala C.V.
- Ayavet C.V.
- Bicharraco C.V.
- Blacilcan C.V.
- C.Castilla C.V.
- Cabot C.V.
- Camaleó C.V.
- Can III C.V.
- Candeleda C.V.
- Canillejas C.V.
- Carlanca C.V.
- Castelló C.V.
- Cobeña C.V.
- Conde de Orgaz C.V.
- Del Tiétar C.V.
- Del Val C.V.
- Delicias C.V.
- Díaz de la Cebosa C.V.
- Doctor Esquerdo C.V.
- Don Can C.V.
- Don Quijote C.V.
- Draco C.V.
- Dulcinea C.V.
- Durán-Alga C.V.
- El Álamo C.V.
- El Bosque C.V.
- El Encinar de los Reyes C.V.
- El Olivar C.V.
- Equisán C.V.
- Equus Can C.V.
- Estoril C.V.
- Eurocan C.V.
- Exovet C.V.
- Fisac-Ferrández C.V.
- Gattos C.V.
- Gerardo Ibáñez C.V.
- Ginzo de Limia C.V.
- Golden C.V.
- Green Can C.V.

- Happy Animal C.V.
- Henares C.V.
- Huasi-Ara
- Jose Cruz Gracia C.V.
- Juan Carlos de la Orden C.V.
- Kennel C.V.
- Kissy C.V.
- La Cala C.V.
- La Cañada C.V.
- La Clinica Veterinaria C.V.
- La Colina C.V.
- La Cruz Verde C.V.
- La Estrella C.V.
- Las Américas C.V.
- Las Lomas C.V.
- Las Navas del Marqués C.V.
- Las Rozas C.V.
- Los Cantos C.V.
- Los Delfines C.V.
- Los Madrazo C.V.
- Los Madroños C.V.
- Los Molinos C.V.
- Los Sauces C.V.
- Madrid Sur C.V.
- Madrideos C.V.
- Majadahonda C.V.
- Maldonado C.V.
- Manzanares el Real C.V.
- Mediterráneo C.V.
- Mi Mascota C.V.
- Moratalaz C.V.
- Nuestra Sra. de Begoña C.V.
- Nuevo Zoo C.V.
- Orcasitas C.V.
- Ortega y Gasset C.V.
- Pablo Tobío C.V.
- Parque Aluche C.V.
- Parque de los Estados C.V.
- Parque Norte C.V.
- Plaza Colón C.V.
- Postas H.C.V
- Pozuelo C.V.
- Puerta de Toledo C.V.
- Puerto de Purchena C.V.
- Quintana C.V.
- Reina Cristina, Centro de Urgencias Veterinarias.
- Retiro C.V.
- Rican C.V.
- Río Duero C.V.
- Río Manzanares C.V.
- Robles C.V.
- S.S. de los Reyes C.V.
- San Antonio C.V.
- San Bernardo C.V.
- San Francisco de Asís C.V.
- San Nicasio C.V.
- Santa Teresa C.V.

- Sarria C.V.
- Sentidos de la Naturaleza
- Seseña C.V.
- Sur Batán C.V.
- Sur C.V.
- Timanfaya C.V.
- Torrelodones C.V.
- Tropifauna C.V.
- Tu Mascota C.V.
- Unicornio C.V.
- Uno mas de la familia C.V.
- Valdebernardo C.V.
- Valdelasfuentes C.V.
- Velázquez C.V.
- Ventas C.V.
- Vet & Vet C.V.
- Víctor & Gerardo Servicios Veterinarios
- Villalba If C.V.
- Zoo-Can

OTHER INSTITUTIONS

Nature and Zoological Parks

- Faunia
- Zoo Aquarium de Madrid
- Naturaleza Misteriosa (Zoo)
- Parque de la Naturaleza Valwo
- Zoo de Santillana del Mar
- Selwo Marina
- L' Oceanografic
- Terra Natura S.A.

Military Centres

- Yeguada Militar de Ibio
- Policía Municipal (Unidad de Escuadrón y Banda)
- Centro Militar de Veterinaria
- Guardia Real

Foreign Universities

- Klinik Für Rinder (Universität Hannover)
- The Royal Veterinary University (Frederiksborg, Denmark)
- Maison-Alfort (Paris)
- ENVN (Nantes)
- ENVL (Lyon)
- Texas A&M University
- Georgia State University

Official Centres

- INIA-CISA
- Consejería Ganadería Agricultura y Pesca
- Laboratorio Central de Veterinaria

- Delegación de Gobierno (Área de Agricultura)
- Grupo Tragsa
- Fundación ONCE del perro guía
- Higitec
- C.N.I.O. (Centro Nacional de Investigaciones Oncológicas)
- Instituto de Salud Carlos III
- Centro Nacional de Microbiología
- Laboratorio Regional para la Salud pública
- Comarca Ganadera de Horcajo de los Montes
- Distrito de Salud de Priego

Private Centres

- Serida
- Setna Nutrición S.A.
- ADS Maeva
- Dibaq Diproteg S.A.
- Trouw Nutrition
- Clínica Ambulante (varias)
- Veterinario Autónomo (varios)
- Los Robles SIV S.L.
- Kubus S.A.
- Valles del Esla S.A.
- Central ganadera del Centro S.A.
- Club Hípico “ La Aldea Ecuestre”
- Amasvet S.L.
- Anche
- YTACYI , Centro de pruebas de porcino
- SPAP
- Sawilidia S.L.
- La Viñera, Explotación agrícola y ganadera
- Pic España
- Explotaciones en Lominchar.
- Eurocatering
- Enva (París)
- Matadero de Tarancón
- Covetcor S.C.L.
- Applus + Agroalimentaria
- Castellana de Ganaderos (cooperativa)
- Exporinsa
- General ganadera del centro S.A.
- Jara Veterinarios
- SPAD



GLOSSARY

GLOSSARY

AEVEE: SPANISH ASSOCIATION OF EQUINE VETERINARIANS
(*ASOCIACIÓN ESPAÑOLA DE VETERINARIOS ESPECIALISTAS EN ÉQUIDOS*)

ALCYTA: FOOD SCIENCE AND TECHNOLOGY GRADUATES ASSOCIATION
(*ASOCIACIÓN DE LICENCIADOS EN CIENCIA Y TECNOLOGÍA DE LOS ALIMENTOS*)

AMVAC: MADRID COMPANION ANIMALS VETERINARIANS ASSOCIATION
(*ASOCIACIÓN MADRILEÑA DE VETERINARIOS DE ANIMALES DE COMPAÑÍA*)

ANECA: SPANISH AGENCY FOR QUALITY ASSESSMENT AND ACCREDITATION
(*AGENCIA NACIONAL DE EVALUACIÓN DE LA CALIDAD*)

ANEMBE: NATIONAL ASSOCIATION OF BOVINE SPECIALISTS
(*ASOCIACIÓN NACIONAL DE VETERINARIOS ESPECIALISTAS EN MEDICINA BOVINA*)

AVAFES: WILDLIFE AND EXOTIC ANIMALS ASSISTANCE VETERINARIANS ASSOCIATION
(*ASOCIACIÓN DE VETERINARIOS PARA LA ASISTENCIA DE LA FAUNA EXÓTICA Y SALVAJE*)

AVEPA: SPANISH SMALL ANIMALS VETERINARIANS ASSOCIATION
(*ASOCIACIÓN DE VETERINARIOS ESPECIALISTAS EN PEQUEÑOS ANIMALES*)

AVCT: ADVISORY COMMITTEE ON VETERINARY TRAINING

BALAENA: STUDENT ASSOCIATION FOR THE CARE, PROTECTION AND WELFARE OF MARINE MAMMALS.

BAM: PET ANIMALS ADOPTION REGISTER OF MADRID
(*BOLSA DE ADOPCIÓN DE MASCOTAS DE MADRID*)

BOCAM: OFFICIAL BULLETIN OF THE AUTONOMOUS COMMUNITY OF MADRID
(*BOLETÍN OFICIAL DE LA COMUNIDAD AUTÓNOMA DE MADRID*)

BOE: SPANISH COUNTRY OFFICIAL BULLETIN
(*BOLETÍN OFICIAL DEL ESTADO*)

BRINZAL: NOCTURNAL RAPTOR RESCUE CENTER

BSE: BOVINE SPONGIFORM ENCEPHALOPATHY

BUCL: COMPLUTENSE UNIVERSITY LIBRARY
(*BIBLIOTECA DE LA UNIVERSIDAD COMPLUTENSE*)

CAM: AUTONOMOUS COMMUNITY OF MADRID
(*COMUNIDAD AUTÓNOMA DE MADRID*)

CE: CONTINUING EDUCATION

CICC: QUALITY INSPECTION AND CONTROL CENTRE
(CENTRO PARA INSPECCIÓN Y CONTROL DE CALIDAD)

CNIO: NATIONAL ONCOLOGICAL RESEARCH CENTRE
(CENTRO NACIONAL DE INVESTIGACIONES ONCOLÓGICAS)

COIE: EMPLOYMENT ORIENTATION AND INFORMATION CENTRE
(CENTRO PARA LA ORIENTACIÓN E INFORMACIÓN SOBRE EMPLEO)

CSD: COMMITTEE FOR TEACHING AFFAIRS
(COMISIÓN DE SEGUIMIENTO DOCENTE)

CSIC: NATIONAL SCIENTIFIC RESEARCH COUNCIL
(CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS)

CSN: NUCLEAR SECURITY COUNCIL
(CONSEJO DE SEGURIDAD NUCLEAR)

CU: FULL PROFESSOR, CIVIL SERVANT, FULL TIME.
(CATEDRÁTICO DE UNIVERSIDAD)

CYTA: FOOD SCIENCE AND TECHNOLOGY
(CIENCIA Y TECNOLOGÍA DE LOS ALIMENTOS)

DEA: DIPLOMA OF ADVANCED STUDIES
(DIPLOMA DE ESTUDIOS AVANZADOS)

EAEVE: EUROPEAN ASSOCIATION OF ESTABLISHMENTS FOR VETERINARY EDUCATION

ECTS: EUROPEAN CREDIT TRANSFER SYSTEM

ENRESA: RADIOACTIVE RESIDUES NATIONAL COMPANY
(EMPRESA NACIONAL DE RESIDUOS RADIATIVOS)

ESAVS: EUROPEAN SCHOOL FOR ADVANCED VETERINARY STUDIES

ESHE: EUROPEAN SPACE FOR HIGHER EDUCATION

FPU: FOOD PROCESSING UNIT

FVE: FEDERATION OF VETERINARIANS OF EUROPE

GEAR: CARDIOLOGY AND RESPIRATORY MEDICINE SPECIALISTS GROUP
(GRUPO DE ESPECIALISTAS EN APARATO CARDIORRESPIRATORIO)

GESTISA: ASSISTANCE SERVICES INTEGRAL MANAGEMENT COMPANY
(*GESTIÓN INTEGRAL DE SERVICIOS ASISTENCIALES*)

GREFA: AUTOCHTHONOUS WILDLIFE REHABILITATION GROUP
(*GRUPO PARA LA REHABILITACIÓN DE LA FAUNA AUTÓCTONA*)

HCV: VETERINARY TEACHING HOSPITAL
(*HOSPITAL CLÍNICO VETERINARIO*)

ICE: INSTITUTE FOR EDUCATION
(*INSTITUTO DE LAS CIENCIAS DE LA EDUCACIÓN*)

ICSA: COMPLUTENSE INSTITUTE OF ANIMAL HEALTH
(*INSTITUTO COMPLUTENSE DE SANIDAD ANIMAL*)

ICOVM: OFFICIAL COLLEGE OF VETERINARY SURGEONS OF MADRID
(*ILUSTRE COLEGIO OFICIAL DE VETERINARIOS DE MADRID*)

ICU: INTENSIVE CARE UNIT

IMSERSO: SOCIAL SERVICES INSTITUTE
(*INSTITUTO DE MIGRACIONES Y SERVICIOS SOCIALES*)

INIA: NATIONAL INSTITUTE OF AGRICULTURAL RESEARCH
(*INSTITUTO NACIONAL DE INVESTIGACIONES AGRARIAS*)

IT: INFORMATION TECHNOLOGY

IVSA: INTERNATIONAL VETERINARY STUDENT ASSOCIATION

LGE: GENERAL ACT ON EDUCATION
(*LEY GENERAL DE EDUCACIÓN*)

LOCE: ORGANIC LAW FOR QUALITY IN LEARNING
(*LEY ORGÁNICA DE CALIDAD DE LA ENSEÑANZA*)

LOE: ORGANIC LAW ON EDUCATION
(*LEY ORGÁNICA DE EDUCACIÓN*)

LOGSE: LAW ON GENERAL ORGANISATION OF THE EDUCATION SYSTEM
(*LEY DE ORDENACIÓN GENERAL DEL SISTEMA EDUCATIVO*)

LOU: UNIVERSITY ORGANIC LAW
(*LEY ORGÁNICA DE UNIVERSIDADES*)

LRU: LAW ON UNIVERSITY REFORM
(*LEY DE REFORMA UNIVERSITARIA*)

MAPA: MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

(*MINISTERIO DE AGRICULTURA, PESCA Y ALIMENTACIÓN*)

MEC: MINISTRY OF EDUCATION AND SCIENCE
(*MINISTERIO DE EDUCACIÓN Y CIENCIA*)

MRI: MAGNETIC RESONANCE IMAGING

MSC: MINISTRY OF HEALTH AND CONSUMER AFFAIRS
(*MINISTERIO DE SANIDAD Y CONSUMO*)

OCyDE: QUALITY AND STRATEGIC DEVELOPMENT OFFICE
(*OFICINA DE CALIDAD Y DESARROLLO ESTRATÉGICO*)

OIPD: OFFICE FOR THE INTEGRATION OF DISABLED PEOPLE
(*OFICINA PARA LA INTEGRACIÓN DE PERSONAS CON DISCAPACIDAD*)

ONCE: NATIONAL ORGANISATION FOR THE BLIND
(*ORGANIZACIÓN NACIONAL DE CIEGOS DE ESPAÑA*)

REBIUN: SPANISH UNIVERSITY LIBRARIES NETWORK
(*RED DE BIBLIOTECAS UNIVERSITARIAS DE ESPAÑA*)

SCI: SCIENCE CITATION INDEX

SICUE: SPANISH UNIVERSITY CENTRES EXCHANGE SYSTEM
(*SISTEMA DE INTERCAMBIO DE CENTROS UNIVERSITARIOS ESPAÑOLES*)

TU: ASSOCIATE PROFESSOR, CIVIL SERVANT, FULL TIME
(*PROFESOR TITULAR DE UNIVERSIDAD*)

UCM: COMPLUTENSE UNIVERSITY OF MADRID
(*UNIVERSIDAD COMPLUTENSE DE MADRID*)

UTPR: RADIOLOGICAL PROTECTION TECHNICAL UNIT
(*UNIDAD TÉCNICA DE PROTECCIÓN RADIOLÓGICA*)

UNED: SPANISH DISTANCE LEARNING UNIVERSITY
(*UNIVERSIDAD NACIONAL DE EDUCACIÓN A DISTANCIA*)

VETERMON: VETERINARIANS WITHOUT BORDERS
(*VETERINARIOS SIN FRONTERAS*)