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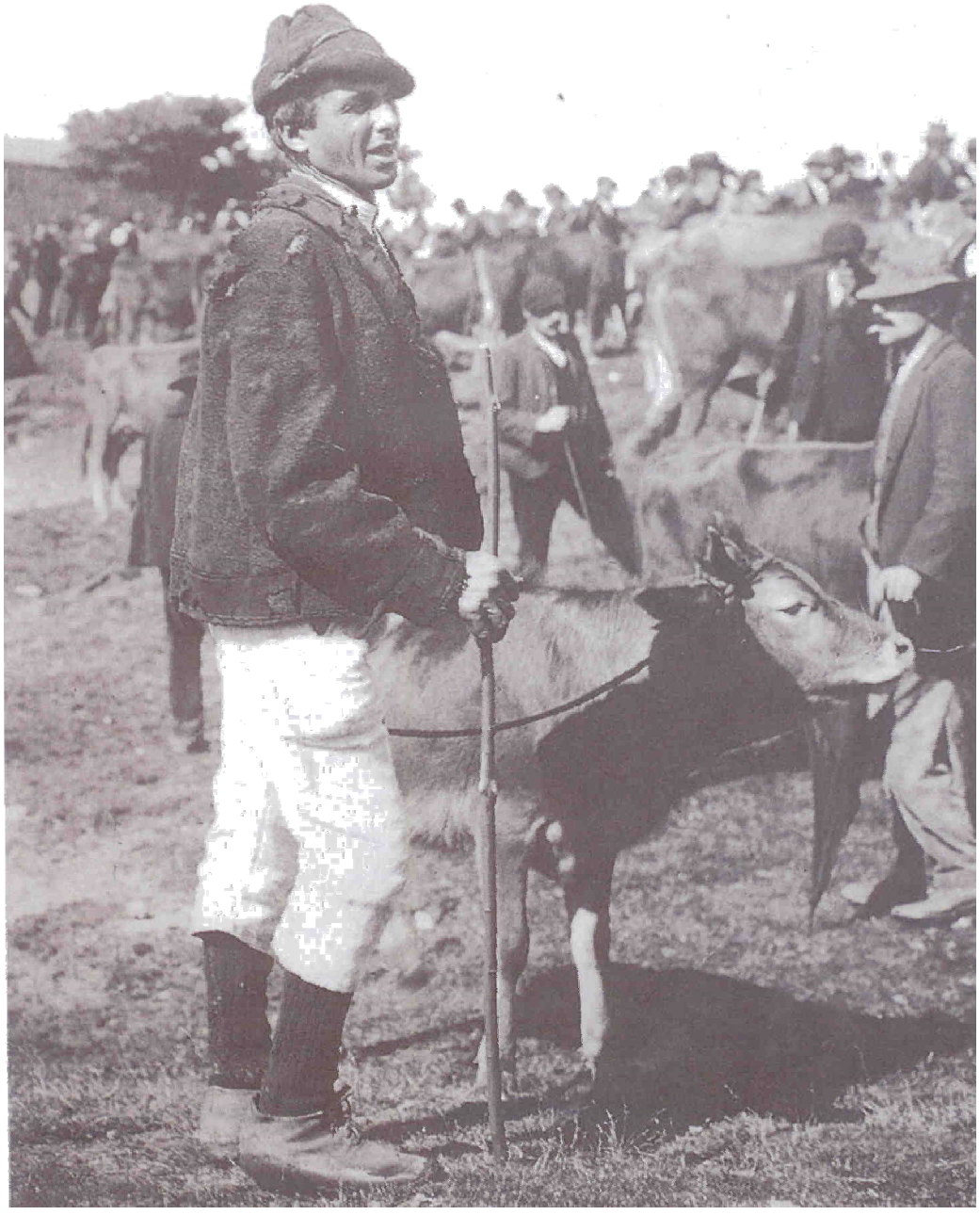


INTRODUCTION

INTRODUCTION

Please provide an outline of the main features of the history of the establishment in the period since the last evaluation visit or, if there has not been a previous visit, in the last ten years or so.
It should cover:

- **The main organisational changes**
- **New regulations relating to teaching**
- **Main changes to the study programme**
- **Important decisions made by the management of the establishment, or by the authorities responsible for it**
- **Major problems encountered by the establishment, whether resolved or not**

The *Universidade de Santiago de Compostela* (University of Santiago de Compostela, or USC) is one of the oldest Universities in Europe. The Veterinary Faculty is located on its branch Campus in the city of Lugo which is the capital of the one of the four provinces that make up the Galician Autonomous Community. The first Full Evaluation Visit to the Veterinary Faculty in Lugo took place on 23-29 March, 1998. The team's report included some suggestions regarding deficiencies which implied that the training given at that time did not satisfy the requirements of Directive 1978/1027/EEC, as well as other observations on less relevant aspects. In January 2002, a follow-up visit was carried out by Dr. Conceiçao Martins to assess the improvements made since 1998. The follow-up report indicated that the major deficiencies observed in 1998 had been rectified. Thus, in March 2002, the Veterinary Faculty in Lugo was included in the EAEVE's "List of Visited and Approved Faculties".

From 1998 until now, the Veterinary Faculty in Lugo has undergone important quantitative and qualitative advances.

Regarding **organisational changes**, the Veterinary Teaching Hospital "*Rof Codina*" (VTH) has (1) new guidelines, (2) an increased number of staff and (3) newly created leadership posts for its main services (Surgery, Internal Medicine, and Diagnostic Imaging). All of these changes have helped to improve the operations of the VTH. The Hospital provides 24/7 coverage all year long for emergency and medical care and allows student access at all times so as to promote the participation of students in all the emergency and hospitalisation activities. Since 1999, the Veterinary Teaching Hospital has an active Mobile Clinic. This clinic has several vehicles and provides services as required for single animals and/or those consultations regarding herd health, as well as equine clinical services for the entire region. Students at the Veterinary Faculty actively participate in this service.

Other organisational changes have also been made. In 2000, a new Vice-Dean figure was created to deal with national or international student exchange programmes as well

as other student issues. In 2002, one of our major departments, the *Department of Animal Pathology* was split into two separate ones, the *Department of Animal Pathology* and the *Department of Veterinary Clinical Sciences*. Along other lines, the other Departments responsible for basic science coursework are still Inter-Faculty Departments. In 2004 a Committee on Linguistic Standardisation was created. A more recent and rather important organisational improvement was the creation, in 2006, of a new support staff position in charge of Academic Management at the Faculty, and also of the development of certain pre-professional extramural practices.

With respect to **new regulations as related to teaching**, the centralised educational administration as dictated by Spanish Parliament has been adapted to a decentralised model that divides educational competences; thus, the Ministry of Education and Science (MEC) reserves the functions of legislation and coordination of the Spanish Education System while the various Autonomous Communities, such as the Galician Autonomous Government, have the political competences required to finance public Universities and also to develop minor legislation.

During the last few years, the legislation on Higher Education in Spain has undergone several changes in order to be adapted to the European Space for Higher Education (ESHE) created by the Bologna declaration (1999) and based on quality, mobility, diversity, and competitiveness in University Education.

The former Law on University Reform (*Ley de Reforma Universitaria,* LRU) was recently replaced by the University Organic Law (*Ley Orgánica de Universidades,* LOU*)* passed by Congress in December 2001. The implementation of this law has brought about considerable modifications in the structuring of the different University Bodies, since it defined new types and new systems of access for academic posts. This law also created the Spanish Agency for Quality Assurance and Accreditation (ANECA) for the Evaluation of teaching and research quality. The law also allowed for the creation of the Galician Agency for University Quality Assurance (ACSUG). In accordance with one of the objectives of the Bologna declaration, an amendment of this law was approved, in April 2007; it established two cycles, graduate and postgraduate, in the system of Higher Education.

Other objectives derived from the declarations at Bologna (1999), Praga (2001), Berlin (2003) and Bergen (2005) were provided for by new regulations about the implementation of the European Credit Transfer System (ECTS), the new system of academic marks, the European Supplement to the Degree, and the recognition of foreign Degrees.

The major changes in regulations on Higher Education since 1998 are summarized in Table 1.

TABLE 1. Major Changes in Regulations on Higher Education since 1998

Regulation	*Level**	*Date in Effect*	*Content*	
University Organic Law 6/2001: Ley Orgánica de Universidades (LOU)	**N**	2001	- Revoked the Law on University Reform (LRU) valid up to 1998. - Introduced important changes in the structure of the different University Bodies, defining new types and new systems of access to the academic posts. - Established mechanisms for quality assurance in teaching and research through the creation of the Spanish Agency for Quality Assurance and Accreditation (ANECA). - Provided for students and teaching staff mobility and many aspects regarding integration in the ESHE.	
Statutes of the University of Santiago de Compostela	**U**	2004	- Basic law, adapted to the LOU, about the organisation and operations of the University of Santiago de Compostela that revoked the former Statutes	
Law 4/2007 (amending the LOU)	**N**	2007	- Amended some articles of the LOU. - Established two cycles, graduate and postgraduate, in higher education.	
Royal Decree 1125/2003	**N**	2003	- Regulated implementation of the ECTS and standardized marks	**Regulations regarding integration in the European Space for Higher Education (ESHE)**
Royal Decree 1044/2003	**N**	2003	- Established the procedure to issue the European Supplement to the Degree	
Royal Decree 285/2004 (amended by Royal Decree 309/2005)	**N**	2004/2005	- Regulated the conditions for the recognition of foreign degrees	
Royal Decree 55/2005 (amended by Royal Decree 1509/2005)	**N**	2005	-Established the structure of the graduate cycle in higher education	
Royal Decree 56/2005 (amended by Royal Decree 1509/2005)	**N**	2005	- Established the structure of the postgraduate cycle in higher education	
Decree 51/2006	**G**	2006	- Authorised the implementation of the postgraduate cycle in Galician Universities	
Pre-professional Practice Regulations	**F**	2005/2006	- Regulation, approved by the Faculty Board, about the dates and procedures to develop and to evaluate the Obligatory extramural fieldwork that the students must undertake.	
VTH Regulations	**H**	2001	- Regulation about the structure and functioning of the Veterinary Teaching Hospital "*Rof Codina*"	

Level*: ***N*: *National;* ***G***: *Galician Autonomous Government;* ***U***: *University of Santiago de Compostela;* ***F***: *Veterinary Faculty;* ***H***: *Veterinary Hospital.*

Concerning **new buildings or major equipment**, many very significant advances were implemented from 1998 until now:

- Opening of a Scanner Service in the VTH.
- Building of a second and a third computer room and renewal of computers.
- Acquisition of four new vehicles to attend to the needs of the students doing their obligatory extramural fieldwork and for Mobile clinic use.
- Remodelling of the Cremation Service rooms and installation of a new crematorium.
- Acquisition of a new vehicle to collect dead bodies and/or organs from farms and slaughterhouses.
- Installation of computers and digital projection equipment in the seven classrooms and Auditorium.
- Acquisition of a new third ultrasound machine in the VTH; so, one is reserved for small animals and two are used for large animals and horses.
- Renewal of the Ophthalmic Examination Microscope and acquisition of Electroretinogram and Phacoemulsification devices in response to the increasing demand for the Ophthalmology Service in the VTH.
- Acquisition of 5 portable digital projection systems and 2 portable computers.
- Installation of loudspeakers in the 3 larger classrooms and Auditorium.
- Acquisition of a portable videoconference system to connect Auditorium or classrooms with the Hospital, necropsy room, etc.
- Remodelling of the riding room and enlargement of the rooms dedicated to horses in the VTH.
- Remodelling of the reception room and of two rooms for practical classes of *Propaedeutics* in the VTH.
- Remodelling of the dissection room in the Anatomy Building.
- Remodelling of the necropsy room for practical classes of *Pathological Anatomy* and installation of a new freezer.
- Installation and refurbishment of a new laboratory for practical teaching in Histopathology and a new multidisciplinary laboratory and seminars to be shared by different subjects.
- Creation of the Faculty Web Site.
- Creation of a collection system for laboratory residues (University level).
- Renewal of the system to collect/separate the manure from the stables in the VTH.
- Installation of optical cable intranet (University level).
- Installation of a Wi-Fi system with coverage in all the Faculty and Hospital rooms (University level).
- Computerisation and adaptation of the Library to the new IT technologies/resources (University level).
- Repair of the plumbing in all the Pavilions of the Faculty.
- Adaptation of buildings to accommodate the physically handicapped.

- Refurbishment of staff dining room.
- Opening of a saving bank office in the Central Pavilion.
- Opening of the Medical Service in Pavilion IV (University level).
- The Faculty has become actively involved in two programmes (University level), one for risk prevention through the Prevention of Working Risks Service and the second one a Plan of Sustainable Development for the selective collection of residue (paper, toner, cell phones, CDs, DVDs, Computers, etc).
- Painting of the Central Pavilion.
- Substitution of fences around entire Faculty complex.
- Renewal of gardens and installation of irrigation systems.
- One more facility has been built: the CACTUS (Centre for Scientific and Technological Support) in 2007. Although this centre does not belong to the Faculty, many teachers participate in their research activities and it is expected to have a very positive impact on the Faculty.

In addition, there are also further projects that are being carried out at this time or that have been approved to start during the next months:

- Computerization of Digital Radiography.
- Opening of a Magnetic Resonance Imaging Service in the VTH.
- Development of a new programme for computer management of medical care activity and creation of a data base for the patient records in the VTH ("A Hospital without paper").
- Roofing of an open-air area for horses at the VTH.
- Renewal of the heaters.
- Substitution of air extraction apparatus in the cafeteria.
- Repairing of cornices.
- Remodelling of the central Pavilion and Auditorium.
- Substitution of the power supply.
- Remodelling and refurbishment of a new room for practical classes with small animals.

More details on all the buildings and equipment are given in Chapter 6.

In reference to the **changes to the study programme**, a major modification has been the implementation of a new curriculum which started in the academic year 2001-02. (It was published in the Spanish Official News Bulletin, *Boletín Oficial del Estado*, B.O.E., number 290, pages 42427- 42435, 4 December 2000) and revoked the former curriculum of 1985 (published in the B.O.E., number 58, pages 5904- 5905, 4 March 1985). The new curriculum from 2000 fulfils the requirements addressed in the legislation governing basic veterinary training in the European Union countries (Directive 2005/36/EU) as well as those defined in Royal Decree 1384/1991 that still regulates Veterinary Curricula in Spain. As an example of the important changes derived from the new curriculum implementation in 2000, as far as core subjects are concerned, we have decreased the theoretical activity by 50.15% per student (from 3350 hours of

lectures and seminars in the 1985 curriculum to 1680 hours in the 2000 curriculum) and have increased their practical activity by 255% (from 715 hours of practice in 1985 to 1820 hours in 2000 including the obligatory extramural fieldwork). Moreover, in the new curriculum, every student has 400 hours of elective subjects and 400 hours of optional subjects.

Regarding **important decisions made by the management of the establishment, or by the authorities responsible for it,** significant efforts have been made to promote and boost new teaching methodologies such as self-learning or problem-solving oriented learning. We have also tried to optimize the use of resources for teaching; thus, we have only one group of students for lectures in every subject and we have reduced the ratio of students/teacher to 15/1 in non-clinical subjects and 7/1 in clinical subjects. In addition, most of the subjects have been activated on the USC's Virtual Campus (*USC Virtual*) that acts as an Internet library where students can find teaching materials, course notes, pictures, videos, etc. All these changes have produced a considerable increase in teaching quality. Special emphasis has also been made to preserve animal welfare and to transmit the notion of respect and protection towards animals to the students.

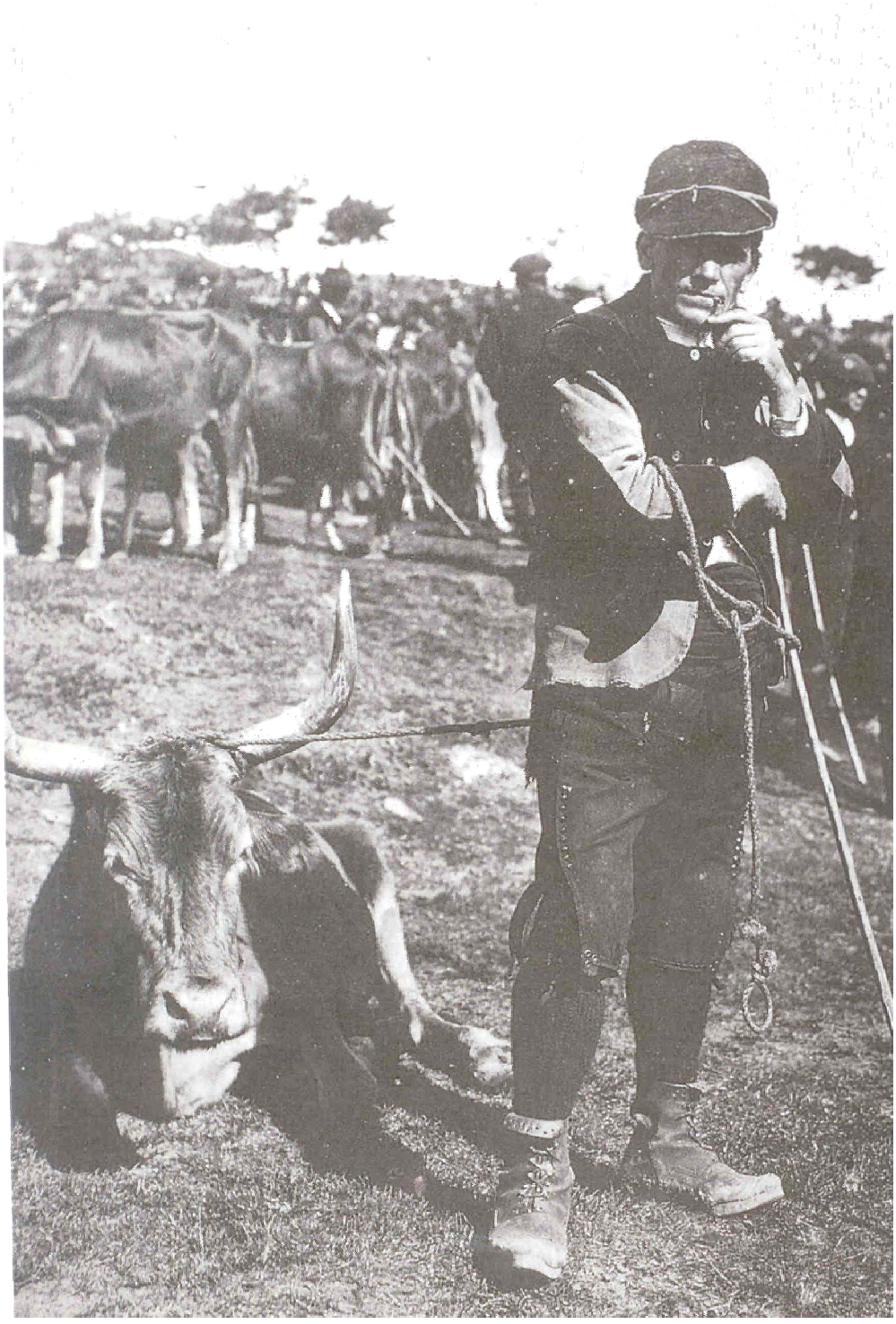
Moreover, in the past 10 years a decrease in birth rates all over Spain has had an impact on the number of students enrolling at University. However, this has not been the case at the Veterinary Faculty where the number of applications received has maintained itself even during this slump. Nonetheless, in order to improve the quality of teaching, the Faculty engaged in intense negotiations with the USC and with the University Council of Spain in order to obtain a reduction in the number of University places open to potential students of Veterinary Medicine. Therefore, in spite of the fairly constant number of applicants, the number of new students at the Veterinary Faculty has gone down from 152, in the academic year 1997-98, to 136 in 2006-07. Such a progressive decrease has facilitated the introduction of more active learning technologies and helped in the organisation of the clinical training in small groups of 4-7 students.

The USC and the *Rof Codina* Foundation, the entities that are responsible for the Faculty and VTH budgets, respectively, have provided funding for an important increase in the number of teaching and support staff. As an example, the ratios *teachers/students* and *teachers/support staff* went from 1/21.84 and 1/0.38 respectively, in 1996; to 1/8.6 and 1/0.85 for the 2006-07 academic year.

Finally, the **major problems** encountered by the Faculty during the past ten years can be summarised as follows:

- Even though there are now more professors and support staff, the increase in hours of practice as required by the new curriculum means that there is still an evident shortage of both.
- The current budget constraints that are in effect right now at the USC particularly affect the acquisition of teaching equipment and hiring of new staff.

- The students who are currently studying Veterinary Medicine seem to by highly motivated for the study of animal medicine; however, the majority of them lack any interest whatsoever in other areas of the profession.
- There also seems to be a certain conflict of interest with the local small animal Clinics because of the important increase in the number of cases carried out at the VTH and the 24/7 coverage available there all year long.
- The Internship Programme developed in the VTH has yet to be officially recognised by the USC.
- While the development of a new figure of Veterinary Clinical Intern who would assume night duties at the VTH seems to be the proper step to take at this time, there has been some reserve about the recognition of this position as Teaching Staff by the USC.



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 University of Santiago de Compostela (USC)

The USC is a public institution with its own jurisdiction that, in accordance with the Spanish Constitution and other applicable legislation, is autonomous and competent to make available the public service of higher education by means of teaching, research and studying.

Some of the main objectives of the University are defined in Article 4 of the recently approved USC Statutes (February 2004):

- To create, develop, apply and review scientific, technical and artistic knowledge and to encourage an education based on democratic principles, the defence of peace, and human rights.
- To train professionals to practice in those fields which require the application of scientific methods or artistic knowledge.
- To disseminate, evaluate and transfer knowledge in order to serve culture, the quality of life, and the development of the economy and society.
- To disseminate knowledge and culture through the extension of University resources and life-long continuing education.
- To offer scientific and technical support to the development of the people, the economy and the culture of Galicia.
- To uphold the complete formation of the University community by programming and organising courses, conferences, and also cultural, recreational and sports activities.

- To foster the various groups and/or University Associations that develop activities related to students, culture, and sports.
- To transmit the functions and services of the University to society.
- To pay special attention to the defence, development and dissemination of the Galician culture, as well as to maintain in close contact with other institutions that share this objective.

1.2. Major Objectives of the Veterinary Faculty in Lugo

We believe that in order to facilitate the complete development of our students it is not only necessary to provide high quality teaching, but also to generate a learning environment in which the students are able to achieve their potential. Nowadays, having the ability to seek out information for one's self, to solve complex problems, or to combine basic science with applied knowledge in animal and clinical sciences as well as in the area of food hygiene, is crucial. Moreover, these skills will be even more important in the near future.

Thus, it is within this framework that we set the outcomes expected to be reached by the completion of the Degree at the Veterinary Faculty in Lugo; just as it says on our Webpage, students should possess:

- Adequate knowledge of the sciences on which the veterinary surgeon's activities are founded.
- Adequate knowledge of the structure and function of healthy animals, their breeding and reproduction, their sanitary conditions and feeding including the technology needed for the manufacture and the preservation of animal food.
- Adequate knowledge in the field of animal behaviour and protection.
- Adequate knowledge about the causes, nature, development, effects, diagnosis and treatment of animal diseases as considered in groups or individually, and more particularly about diseases that can be transmitted to human beings.
- Adequate knowledge of preventive medicine.
- Adequate knowledge of the technology and hygiene needed in the manufacture of animal products for human consumption.
- Adequate knowledge of legislative and administrative rules and regulations related to the subjects already stated.
- Adequate clinical and practical experience under appropriate supervision.

These objectives fulfil the requirements addressed both in the *European Directive* (2005/36/CE) as well as the current *Spanish legislation* (Law 44/2003 that regulates those professions related to Health—BOE; Spanish Official News Bulletin of November 22nd, 2003—and the Spanish Specific Directive for Veterinary Studies, Royal Decree 1384/1991 –BOE; Spanish Official News Bulletin of September 30th, 1991).

In this section we must also address the "*Rof Codina*" Foundation that financially supports the Veterinary Teaching Hospital. Constituted on 19th May 1994, as a non-profit organisation, the following objectives appeared in it Founding Letter:

- To foster the practice of clinical teaching at the Veterinary Faculty in Lugo in order for the students to obtain a better understanding of theoretical seminars through practice at the Clinical Hospital.
- To offer collaborative assistance in:
    - Practical training of students.
    - Recycling, refreshing and specialization of postgraduate students.
    - Continuing Education for professionals.
    - Specialized training in the different clinical branches of the profession.
    - Practical collaboration with other public institutions and University centres.
    - Collaboration and exchange of noted national and international specialists.
    - Organisation of conferences, congresses, vocational guidance and other types of courses on clinical monographic themes.
    - Establishing a resource centre for professionals.
    - Acting as a reference centre for public, environmental and livestock health.
- To tender collaboration and promotion of research work
    - By fostering experimental research work in general and promoting research work on the cases observed at the Clinical Hospital.
    - By promoting exchange with well-known national and foreign specialists.
- To render assistance with a Mobile clinical service
    - For cattle-raising farmers and for animal owners in general.
    - For technical assistance of veterinary surgeons in those fields in which, due to a lack of instruments and other devices, they are deficient, such as: radiography, ultrasonography, cardiology, clinical and microbiological tests, complex surgery, etc.
    - For collaboration in the control of public health.
- To promote the development of livestock farming by paying special attention to disease prevention and recovery of animal health.

1.3. Secondary Objectives of the Veterinary Faculty in Lugo

Apart from the major objectives already described, we have also seen the need to consider and put into practise some other more general objectives which are listed below:

- The specialisation of Post-graduate students either by access to different Masters of specialization and/or to a Ph. D programme in various areas of knowledge leading to the Oral Defence of their Doctoral Dissertation.
- Continuing Education and Refresher Courses for professionals with postgraduate courses and other courses on professional techniques and specific methods used in the profession.

- The utilisation of the Faculty as well as the VTH as centres of reference in Sanitary and Animal Medicine matters and as centres of reference for various issues related to Public Health.
- The consideration of our Faculty as not only at our own professionals' disposal but as also available for society at large, even on an international level, since we have renown prestige in certain fields of biomedical research.

1.4. Methods Used to Measure the Achievement of Our Objectives

The methods used to evaluate and adapt the objectives set out by the Faculty rely heavily on the quality of the teaching and also on the students' satisfaction with this teaching. For this reason, they are asked to participate in a survey about the teaching of each individual professor. Thus, special attention is given to the teaching as well as to the research activities of the teaching staff.

The methods used are those established by the University, and can be summarised in four concrete points:

1. There is an **annual questionnaire** about the teachers and the Departmental activities. In this survey, the students give their opinion about various aspects of the teaching activities, such as the teacher's knowledge and mastery of his subject, his ability to make himself understood, and other parameters that help measure the teaching quality of each individual professor. These questionnaires are assessed by a University Technical Team and the results and conclusions are sent to the individual professors and lecturers, to the different Departments and to the Faculty so as to take them into account and make the necessary corrections in those aspects that need to be improved.

2. Every five years, a teacher presents his **personal teaching report** (about his various activities and achievements). This report is submitted for approval by the Department, by the Faculty Board, and by the University Government Board. When/if approval is granted, it entitles him to obtain recognition of his work together with a salary increase.

3. There also exist **annual money grants** which are conferred for a teacher's research productivity; taking into account each teacher's curriculum vitae, i.e. scientific publications, direction of Doctoral Dissertations, participation in Scientific Congresses, etc., these grants are awarded by the Vice-Rector of Research by way of the Departments.

4. Finally, there are external **anonymous assessments** of a professor's personal and individual teaching and research work which are requested from the Spanish Agency for Quality Assurance and Accreditation (ANECA) and/or from the Galician Agency for University Quality Assurance (ACSUG). The first agency awards an Evaluation of Teaching and Research Quality valid all over Spain, while the second is valid for the entire Autonomous Community of Galicia. These can be voluntarily requested every

six years for professors having tenure and once approved will ensure an increase in salary. These reports are also mandatory for any applicant of new academic post openings the University.

Moreover, the USC recently approved (November 2007) a specific programme for the evaluation of teaching activity which is still in a Pilot study phase, but which will go into effect in the academic year 2008-2009.

With respect to the specific methods we are using to assess how well our objectives at the Veterinary Faculty are being fulfilled, we have a **Teaching Affairs Committee** (TEAC) ("*Comisión de docencia*"), which is appointed by the Faculty Board. This TEAC meets periodically to analyse and evaluate problems related to the curriculum, teaching methodologies, fulfilment of practical classroom activity goals and any other questions related to teaching or acquisition. The Faculty also has the authority to organise the teaching requirements of every professor and/or lecturer as far as class timetables and final examination calendars are concerned. The schedules are annually prepared and established by the Faculty Board and must take into account the Annual Teaching Plans, as deemed necessary by the Vice-Rector of Academic Management. The Annual Teaching Plans are based on the number of hours of class necessary for students to comply with the minimum time each student should spend in the Faculty as required by the present curriculum and syllabuses.

As regarding the specific methods we employ to assess how well the objectives of the Veterinary Hospital are being fulfilled, the *Rof Codina* Foundation has a **Monitoring Committee** (MC) ("*Comisión de Seguimiento*") to study those proposals submitted by the Hospital and the Faculty as well as to authorise the annual budget and the activities developed The Foundation also has a **Management Committee** which makes decisions as *per* the functioning of the Hospital, Hospital Services, Residents, Scholarship holders, etc. Finally, the Foundation has an **Advisory Committee for Research and Teaching Affairs** ("*Comisión Consultiva de Investigación y Docencia*") to verify and control the teaching and research work developed at the Hospital.

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. Extent to Which Objectives Are Being Met

The training objectives of our Veterinary surgeons are currently being met for the most important facets of the Veterinary profession, such as Animal Medicine, Animal Production, Animal Products, Hygiene and Food Technology. They are also being fulfilled for the various aspects of biological and biomedical scientific training which are needed for a proper practice of the characteristics included in the recommendations

enumerated by FVE, EAEVE (Newsletter number 9, 2000) and by the European Project VET2020.

2.2. Major Strengths and Weaknesses of the Faculty

Some of these, and more particularly certain weaknesses, have already been addressed in the Introduction of this Self-evaluation Report. Even with certain deficiencies detected in the Faculty, we can still clearly affirm that we have excellent material and structural conditions. Our goal will continue to be find ways to make them be more fruitful. The major strengths and weaknesses can be summarised as follows:

STRENGTHS

- **Students**: Our centre has a good reputation and the demand for places at the Veterinary Faculty in Lugo far exceeds the number of places available; for example, in the 2006-07 academic year, 642 students applied for the 123 places offered. According to the University Recruitment system in Spain, our students have a medium-high standard, since in high school they must have maintained a grade point average of at least 6.39 on a scale of 0-10.

- **Staff Commitment**: The staff members at the Faculty make up an academic team of high standards. Most of them hold national or international PhD degrees. The Academic Staff is quite active in research and they are experienced and committed to quality teaching. The Support Staff (administrative offices, secretaries, laboratory assistants, hospital aides, animal caretakers, etc.) also has the background, experience and skills necessary to execute the assigned tasks in a more than adequate fashion.

- **Facilities**: The buildings that make up this complex were especially designed to offer high quality theoretical, practical and clinical teaching sessions. They are large and modern and house good facilities including classrooms, the central library, computer laboratories, and more.

- **Equipment**: The general equipment in the Faculty as well as the equipment in the research laboratories and in the clinical hospital is adequate for our current requirements. Their care and maintenance is efficiently managed. Nonetheless, a realistic vision of the future identifies this area as one that will have to be improved.

- **The Veterinary Teaching Hospital "*Rof Codina*"**: Our Hospital has modern facilities and the equipment necessary to carry out the clinical teaching sessions. It also provides state-of-the-art Veterinary Medical Services for Veterinarians and the citizens of Lugo and surrounding regions. The Hospital is committed to excellence in the diagnosis, treatment, and management of companion, equine, farm, exotic and wildlife species through specialty services in Internal Medicine, General and Orthopaedic Surgery, Anaesthesia, Cardiology, Ophthalmology, Dermatology, Oncology, Diagnostic Imaging, Reproduction, Emergency and Critical care and

more. The Hospital maintains close contact with the other University Veterinary Hospitals in Spain and played a lead role in the creation of the Spanish Network of University Veterinary Hospitals. This Network considers the "*Rof Codina"* Foundation to be a good example of management which can guarantee a balanced budget, and at the same time, also maintain quality clinical teaching with a caseload that is high enough to increase the referral cases every year. Moreover, it has an increasingly good reputation and there is a high demand for posts in Internship and Resident Programmes.

- **Organisation**: The organisation of the Faculty has been structured in a very systematic way. Any academic activity is planned well in-advance (i.e. type as well as time and place for every theoretical, practical or clinical activity, exams, and such) in order to allow the students to organise their complete agenda for the entire semester before it starts. All academic activities are also controlled and assessed. For example, teachers have to sign an appropriate form each day that they give a lecture and, at the end of each semester, these signatures are compared with the academic plan created before the beginning of the semester. Unjustified changes may be subjected to admonition by the TEAC or the Vice-Dean. However, even though there may be some minor differences, the degree of agreement between what is planned and what is actually carried out usually exceeds 90%.

- **University Structure**: The structure of the USC allows for a high degree of collaboration with other Faculties and their Departments, and makes the use of most general services easy (i. e. central library, scientific and technological support, laboratory animal facilities, recreational sports office etc.).

- **Research Achievement**: Most of the academic staff is involved in national and/or international competitive research programmes and projects in the different fields of veterinary, animal and food science. The Faculty has several Doctorate Programmes. Our teachers regularly collaborate with other national and international universities, research centres, and private or public companies in research and development activities.

- **Commitment to Teaching Innovation and Quality**: During the last ten years, the Veterinary Faculty has participated in many university courses for teaching innovation and many professors routinely apply new teaching methodologies such as self-learning or problem-solving oriented learning to their classes. In addition, most subjects are activated on USC's Virtual Campus (USC *Virtual*) where students can find teaching materials, course notes, pictures, videos, etc.

- **Location**: The Faculty is located in a province with significant potential for farming and livestock and we are held in great esteem and respect in our province and all over the Galician Community. The geographical area where the Faculty is located attracts many students from other Galician provinces, other Autonomous communities (Basque country, Cantabria, Asturias) and Portugal. The Faculty is located on a

campus that is easily accessible by private or public transportation for students, staff and clients. Moreover, Lugo is considered to be an economical place to live especially as far as accommodation and alimentation products are concerned. There are with two University Residence Halls available for the accommodation of students and visitors which help to facilitate national and international exchange programmes.

WEAKNESSES

- **Shortage of Academic Staff**: Over the last ten years the number of teaching and support staff has been substantially augmented; however, due to the implementation of the new curriculum and the 255% increase in practical classes for students that this involved, this number will have to continue to increase. At times, the current situation makes it difficult to cover sabbaticals and leaves of absence when necessary and sometimes even results in overworked staff.

- **Budget Constraints**: Recently, the economic situation of the USC has particularly affected the acquisition of teaching equipment and the hiring of new staff. We are now forced to look for external funding, since the ordinary budget is not enough to provide for both the necessary renewal of equipment as well as the implementation of more innovative actions in teaching. In many cases, the annual budget is not even enough to cover operating costs specifically related to teaching and they have had to be partially financed by Research projects.

- **Curriculum**: The current syllabus with its heavy practical teaching load causes some logistical problems, mainly as related to the coordination of the timetable, which, in the end, make it difficult for the students to attend such an important number of core-subject practical classes and still have enough time to attend their elective-subject lectures. Along other lines, while the practitioners and the official veterinary services have been collaborating very well in order to develop the extramural obligatory work programme, the presence of other external institutions (veterinary practitioners, professional associations, society…) is still lacking in this curriculum design.

- **Teaching Farm**: Despite the fact that the Faculty has many agreements with other farms in order to guarantee the development of practical classes in clinical and animal production subjects, the Spanish Ministry of Agriculture and the Galician Governmental Agency of Agriculture constantly regulate new bio-security laws that require more control and restriction of external access to farms. This is an increasing problem in the organisation of these practical classes in those food-producing animals under important Emerging Disease Alerts, i.e. as is the case of poultry with the menace of Avian Flu.

- **Clinical Assistance at the Hospital**: On a University level, the Hospital needs the USC to officially recognise the internship programme developed annually as well as for them to approve the creation of a new teaching staff figure: Veterinary Clinical

Intern for night duties. This would help to alleviate the academic staff shortage. The Hospital already has a few European diplomates staffing the different Services. But, generally speaking, these specialists are overworked which makes it difficult to implement programmes for graduates who are preparing for their diplomate exams. Another difficulty is that some of the local Small Animal Clinics in Lugo suggest that there exist conflicts of interest with the VTH because of the important increase in the caseload over the past few years and the 24/7 coverage that the VTH provides all year long.

- **Departments**: The USC has three campuses. Both the North Campus and the South Campus are located inside the city of Santiago de Compostela, while Lugo is home to the University's Branch Campus. As far as the Veterinary Faculty is concerned, this division means that only three of the Departments that manage the major veterinary areas are located at the Faculty itself. The other 16 Departments work on an Inter-Faculty level and most are based in Santiago de Compostela which is relatively far away (95 km) from Lugo. The distance involved in commuting coupled with the fact that the professors give class in a wide variety of University degrees, sometimes hampers both teachers' and students' ability to carry out their work in an easy-going and coordinated fashion.

- **Student Recruitment**: The current University Recruitment System in Spain is quite fair, but it does produce undesirable effects in the make-up of the student population at the Veterinary Faculty. Thus, most students enrolled prefer to study small or large animal medicine, making it difficult to reach a balance between the different Veterinary Professional Profiles. In addition, there is a remarkable imbalance between male (34%) and female students (66%). Furthermore, the low-wage scholarships currently available for Postgraduate Research positions make the recruiting of veterinary graduates for research and postgraduate programmes difficult.

- **Exchange Programmes for Students and Teachers**: There are now 20 agreements for academic exchange with other European and Spanish Veterinary Faculties open to our students and professors. This means that every year we receive about 50 incoming students from abroad and dispatch a similar number. There are two main reasons why our participation may seem limited: (1) the restrictive policies that many European faculties practise, and (2) the fact that the scholarships available for students going abroad are not very well paid. The teaching mobility of our academic staff to other faculties is even lower and partly reflects the scarcity of funds that the University budgets for these actions.

- **Buildings and Facilities:** The VTH needs to increase its space available since it is now at its limit of capacity for the current activity level. The lack of space in offices and laboratories is becoming a bit of a problem at the Faculty because of the increase in Research Staff. In addition, some teaching rooms are not very versatile and in certain cases the thermal comfort conditions should be improved.

- **Continuing education**: The Faculty has improved its offer during the last few years; however, the number of courses and Continuing education activities need to be promoted in order to reach a more optimum level.

3. SUGGESTIONS

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

To improve the problematic situations mentioned above, we advocate the implementation of certain possible solutions, some of which are already being developed:

- After the constant pressure put forth by the Faculty regarding the shortage of academic staff due to the implementation of the new curriculum, the USC is developing a specific Grant Programme for Graduate students to bear the weight of the practical classes in those areas which are still lacking in human resources. Moreover, every year, the Faculty requests that the total number of students who are allowed to enrol be decreased, even though this Degree is one of high demand. In addition, the USC is studying a reallocation of certain support staff positions among the different Faculties in accordance with their true needs.

- With respect to our Curriculum, we can make use of the new possibilities offered by the European Space for Higher Education to develop a new syllabus before the end of 2010. Quite recently, the Spanish Veterinary Dean's Conference has designed a model of new curriculum, but it still has to be authorised and published by the Ministry of Education. The present political situation in Spain favours more flexible laws concerning organisation of Educational Programmes. We expect that these new laws will probably allow for more agile changes in the curriculums and, thus, they will be able to be modified as needed in order to better fit the needs of Society.

- We need to improve the information given to high school students about the fields of work and job opportunities for veterinarians; so, the Dean's Executive Team annually presents our curriculum to the high school students interested in Veterinary training. Also, after the development of obligatory extramural fieldwork programme during the last year, the Faculty now requires undergraduates to diversify their ten weeks of full-time fieldwork practise by working in the Hospital, small and large animal medicine, cattle farming, non-cattle farming, the slaughterhouses and also in the governmental Official Veterinary Services in order to show them a more complete scope of what Veterinarians can do on a professional level and the different fields in which graduates can develop a career.

- As regarding the VTH needs, the USC recently approved the recognition of teaching capacity for all the members that provide clinical assistance. The request to enlarge

the VTH is currently under study; but it will have to be supported by the "*Rof Codina*" Foundation as well as with other public and/or private funds. In addition, the Dean of the Faculty and the President of the Galician Veterinary Associations had a meeting with representatives from the Small Animal Clinics in Lugo and from the VTH and they are trying to reach an agreement.

- To further facilitate the participation of professors and students in Exchange Programmes, pressure should be put on USC authorities so that they increase the funding of these mobility actions, especially as far as the amounts awarded for scholarships are concerned.

- Budget constrains are difficult to overcome. However, increasing the relationship with private companies and non-profit organisations might contribute to the acquiring of more financial support for particular purposes that would provide a parallel benefit the both parties. In addition, the USC has agreed to secure and provide extra funding for the Faculty in order to renew the equipment used in the teaching of practical classes.

- In order to solve the problem related to our students' access to extramural farms, we need to improve our use of the "*Gaioso Castro*" farm that belongs to the Provincial Council of Lugo. We propose to create a Peer Committee to design an ambitious programme which would have to include investment, the acquisition of equipment, maintenance, and refurbishment of this farm (dressing rooms for personnel and students, offices, a milking room, an animal quarantine area, etc.) so that practical activity sessions would be able to be carried out there on different animal production systems. This renovated farm would have to include the most advanced technologies and the strictest of bio-security codes.

- The Faculty Departments should also seek a more active collaboration with the Professional Sector, since this would lead to the identification of areas in which Continuing Education for postgraduates is needed.

2. Organisation

CHAPTER 2. ORGANISATION

2.1. FACTUAL INFORMATION

Please give the basic details of the establishment, starting with the name, address, telephone and fax numbers, e-mail addresses and website addresses

Basic details of our establishment:

Name: Veterinary Faculty in Lugo.
University: University of Santiago de Compostela.
Address: Rúa Carballo Calero, s/n. 27002-Lugo, Spain.
Telephone number: +34 982 285900.
Fax number: +34 982 219500.
E-mail addresses: Secretary of the Dean's Executive Team fvetsecr@lugo.usc.es
Dean decafvet@lugo.usc.es
Dean's Assistant Secretary fvsecdec@lugo.usc.es
Website: http://www.facveterinarialugo.org/
Dean: Ana Mª Bravo del Moral, DVM, PhD, Professor of Pathological Anatomy.

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

2.1.1. USC Structure

The Veterinary Faculty in Lugo forms part of the University of Santiago de Compostela (USC). Founded in 1495, the USC is one of the oldest universities in Europe. In the second half of the 20th Century, the USC underwent a decentralisation process that culminated in the creation of two new Universities within the Galician Autonomous Community (*the University of A Coruña, UDC* & *the University of Vigo, UV*). Since the other two Universities grew out of the USC, the relationship that we share with them is quite deep, even today.

The first Veterinary Faculty started by the USC (1882-1924) was originally deemed the Veterinary Special School. Established in 1882, it was located in the city of Santiago de Compostela. This former "Veterinary Faculty" disappeared in 1924 because of many reasons. First, at that time, there were an insufficient number of students enrolled. Second, on a national level, the Reform Boards had agreed on a reduction in the number of Schools. And finally, the Galician society of that time was reluctant to meet the needs of this School's maintenance. In 1983, 59 years later, a new Veterinary Faculty was created in Lugo. Thus, in a certain sense, this new Faculty is really a continuation of the old School in Santiago, even though there exist some remarkable differences

between them. The most important one is surely how great a compromise the present Galician society has acquired with our Faculty because of the rather significant advances that this course of studies bears upon the agricultural development of the region.

The USC is a public University that depends on the Spanish Ministry of Education and Science (MEC), on a national level, and also on the Galician Government's Department of Education (XUNTA) on a regional level. At present, the USC is spread out over three campuses: two in Santiago de Compostela and one in Lugo. These campuses complement each other and are also completely integrated within the University. The MEC establishes the curriculum for all nationally recognized degrees, and defines the main political lines of higher education in Spain. The Department of Education (XUNTA) is the body responsible for funding and managing the three Universities (USC, UDC, & UV) in the Galician Autonomous Community. Figure 1 summarises this interrelation.

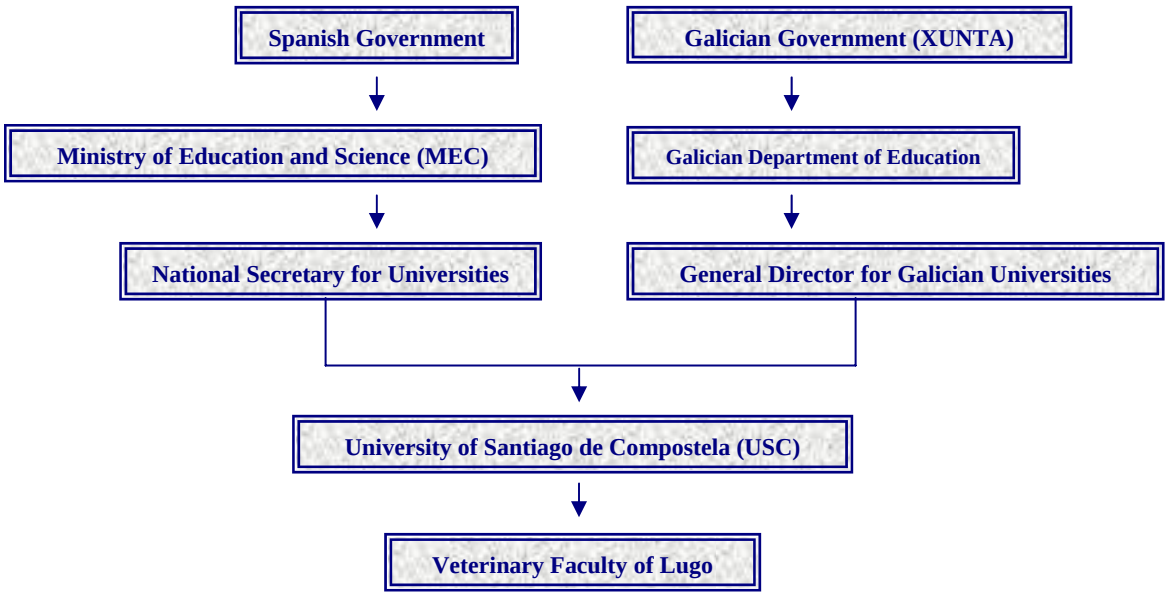


FIGURE 1. Administrative Organisation: How the Veterinary Faculty Fits Into the Hierarchical Structure of the Spanish Government, the Galician Government & the USC

Certain basic figures about the make-up of the USC are shown below (Tables 2 and 3). More information is available at the USC website http://www.usc.es/en/index.jsp

USC Structure	Total	Campuses in Santiago	Campus in Lugo
Centres			
Faculties	19	15	4
USC University Schools	4	3	1
Associated University Schools	3	1	2
Technical Schools	2	1	1
Associated centres	1	1	0
University institutes	17	16	1
Own Research Centres	6	5	1
Departments Based on each Campus	76	70	6

TABLE 2. Faculties, Schools, Associated Centres and such for the USC

Relevant Numbers at the USC	Total
Undergraduate Students	28.661
Students graduated in 2006-07	4.133
Students in Official European Postgraduate Programmes	294
Students in PhD Programmes	3.652
Students in Masters Programmes	543
Students in Specialist courses	354
Students in Ongoing training courses	1.916
ERASMUS students (incoming)	689
Foreign students (non ERASMUS) (incoming)	493
ERASMUS students from USC (outgoing)	467
Academic and Research Staff	2.271
Support Staff	1.186
Degrees offered	63
Own Degrees (offered specifically by the USC)	2
Official Postgraduate Programmes	9
PhD Programmes	67
Masters Programmes	27
Specialist Courses	27
Continuing Education Courses	62
Budget (for 2006)	282.230.142,26

TABLE 3. Relevant Figures for the 2006-07 Academic Year (USC)

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.)

2.1.2. Organisation of the Veterinary Faculty

Current legislation (LOU) divides and defines the organisation of the Universities in Spain into two entities with different specified functions:

A. **Faculties and Schools**: Responsible for organising teaching and supervising the correct development of teaching activities.
B. **University Departments**: Mainly responsible for research and undergraduate and postgraduate education.

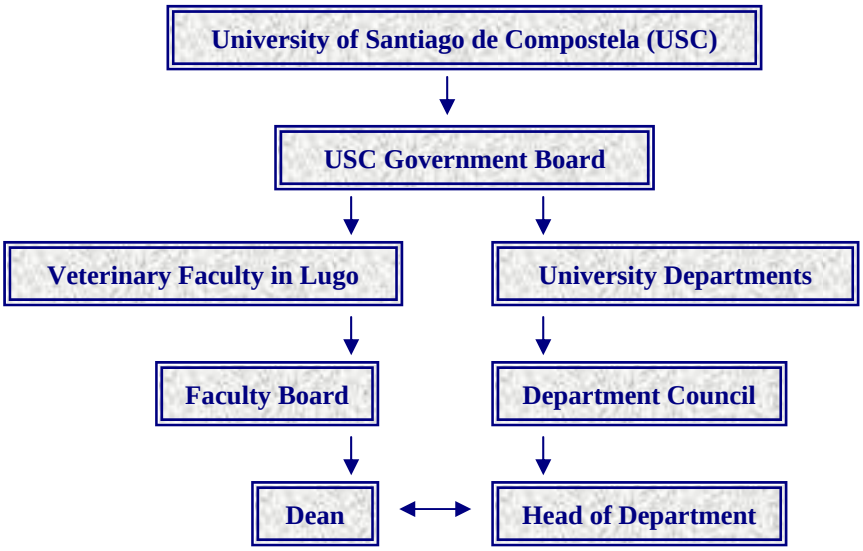


FIGURE 2. Organisation of the Veterinary Faculty & Departments

The Veterinary Faculty is the only centre responsible for the teaching of the Degree in Veterinary Science in the Galician Autonomous Community. The Faculty organises the Veterinary curriculum and assigns the teaching of the subjects needed to the Departments. The Faculty also supervises undergraduate teaching and implements the Quality Assessment Programmes. The Departments must develop the teaching duties assigned by the Faculty. Along other lines, the Departments may request new academic positions at the University and organise the hiring of new teaching staff. Figure 2 summarises this structure.

The Veterinary Faculty is governed primarily by the Statutes of the USC (2004), and by its own Veterinary Faculty Regulations (*"Regulamento de Réxime Interno"*). These Regulations were first approved in 1987, amended in 1991, and are currently in the process of being amended once again so that the new ones can be recognised and established by 2008. All the information as regards these Regulations is addressed on the Faculty website (http://www.facveterinarialugo.org/normativaVet.asp?sec=6). The USC Statutes stipulate the composition, structure, and functions of the Governing Bodies of the Faculty as well as those of the administrative and general services of the USC itself.

Government bodies

A. The Faculty:

The Governing Bodies defined in the USC Statutes are: the Dean, the Dean's Executive Team and the Faculty Board ("*Xunta de Facultade"*).

- **The Dean** holds the highest representation of the Faculty and acts as Director and day-to-day Manager.

- **The Dean's Executive Team** is comprised of Vice-Deans with delegated functions for specific academic activity areas. At present there are three Vice-Deans: (1) *Teaching Affairs*; (2) *Finances, Equipment and Services* and (3) *Students and Exchange Programmes* as well as a Secretary who is responsible for the editing and signing of official reports and certificates. (Table 4). The Faculty also has a Managing Director who is a Civil Servant and is responsible for the Academic management of all issues related to the Faculty. She/he works in close, daily contact with the Dean. There is also an Administrative Secretary who is a Civil Servant.

Dean	**Ana Mª Bravo del Moral**
Vice-Dean for Teaching Affairs	**Mª Ángeles Moreno Grande**
Vice-Dean for Finances, Equipment and Services	**Mª Julia Melgar Riol**
Vice-Dean for Students & Exchange Programmes	**Germán Santamarina Pernas**
Dean's Executive Team Secretary	**José Antonio Villamarín Cid**
Dean's Assistant Secretary	**Mª Carmen Montes Prado**

TABLE 4. The Dean and the Dean's Executive Team

- **The Faculty Board** is the Managing and Governing body of the Centre. It is composed of representatives from all levels of the Institution. According to the USC Statutes, the full members of the Faculty Board are: all the elected members of the Dean's Executive Team (the Dean; the Vice-Deans; the Dean's Executive Team Secretary), as well as four other groups: (1) all the permanent Academic Staff, (2) representatives of the hired teaching and research staff and research scholars; (3) representatives of the undergraduate students, and (4) representatives of the support staff. Thus, the Faculty Board, as such, has a composition that reflects the total number of each group: Group (1) 51%, Group (2) 14%, Group (3) 30%, and Group (4) (5%). This Board meets at least once every trimester.

The representatives for each of the groups listed above are elected by suffrage within the given group. Elected members hold the seat for a four-year term except for the representatives of the undergraduate students which are renewed annually.

The main functions of the Faculty Board are:

a) To elect and revoke the Dean.
b) To prepare, approve and modify the Veterinary Faculty Regulations.
c) To debate and approve the general academic politics of the Faculty.
d) To supervise the management of the Faculty.
e) To prepare proposals for the modification of the curriculum.
f) To create working commissions.
g) To approve the annual budget.
h) To propose the creation, modification or suppression of the adscription of Departments, Institutes, etc.
i) To inform the USC Government Board about the teaching capacity at the Faculty.
j) To propose nominations for *Doctor honoris causa*.
k) To decide about the issues submitted by the Dean or Delegated Committees.
l) To organize and supervise the teaching activities assigned to the Departments.
m) To propose the creation of new teaching posts.
n) To supervise the General Services and Facilities.

Committees Delegated by the Faculty Board

To improve the assessment of different aspects of the Faculty management, the Faculty Board appoints seven Delegated Committees which analyse and propose solutions for problems arising in their areas (Figure 3).

1) Permanent Committee: Its function is to substitute the Faculty Board in order to efficiently expedite certain day-to-day issues. It is made up of the Dean, the Vice-Deans, the Dean's Executive Team Secretary, five Group 1 representatives, two Group 2 representatives, five Group 3 representatives and one Group 4 representative. The

Permanent Committee meets at least once every month.

2) Teaching Affairs Committee: Its function is to propose the timetables for lectures, practical classes and exams for subsequent academic courses and to propose those changes in the curriculum that need to be submitted for the approval of the Faculty Board. This committee also assesses teaching quality and supervises, modifies and analyses all aspects related to the teaching activity in the Faculty. It is made up of the Dean (or the person in whom he/she delegates), six Group 1 representatives, three Group 2 representatives, six Group 3 representatives and one Group 4 representative. This Committee meets at least once every trimester.

3) Research Committee: Its function is to promote and coordinate research programmes. It is made up of one member from the Dean's Executive Team, five Group 1 representatives, two Group 2 representatives, four Group 3 representatives and one Group 4. This Committee meets at least once a year.

4) Finances, Equipment and Services Committee: Its responsibility is to elaborate a proposal for the distribution of the annual budget which is submitted for approval by the Faculty Board; to supervise the facilities and equipment of general use; and to propose the needs for new equipment. It is made up of one member of the Dean's Executive Team, the Head of the Finances Office (support staff) who acts as Secretary, five Group 1 representatives, two Group 2 representatives, four Group 3 representatives and one Group 4 representative. This Committee meets at least once a year.

5) Library Committee: It is established according to the USC Library Regulations. It manages the library resources and recommends the acquisition of books, journals, and different scientific, technical, and teaching media. It is composed of the Dean (or the person in whom he/she decides to delegate), who acts as President; the library Director; one teacher representing each Department; and Group 3 representatives (accounting for 25% of the total number of the Commission members). This Committee meets at least once a year.

6) Committee on Linguistic Standardisation: Its function is to gather and spread data about the use of the Galician language, as well as to promote its use in the Faculty. It is made up of one member of the Dean's Executive Team, five Group 1 representatives, two Group 2 representatives, four Group 3 representatives and one Group 4 representative. This Committee meets at least once a year.

7) Complementary Activities Committee: Its function is to promote and organize cultural or sport activities. It is made up of the Dean (or the person in whom he/she decides to delegate), three Group 1 representatives, one Group 2 representative, six

Group 3 representatives, and one Group 4 representative. This Committee meets at least once a year.

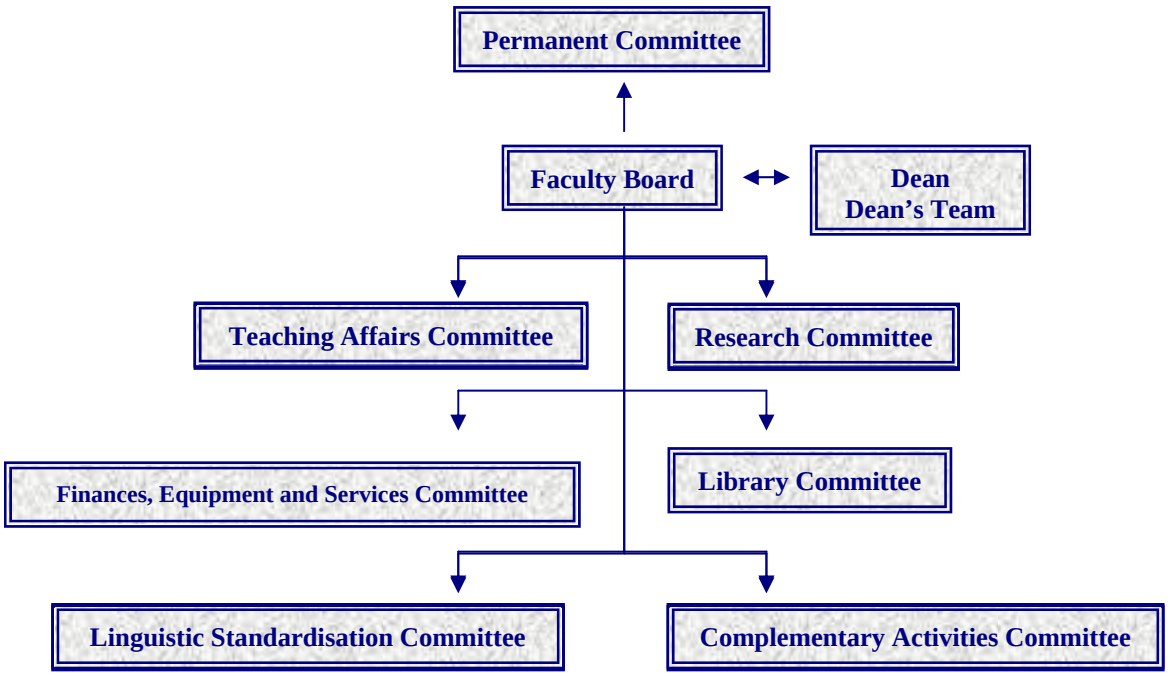


FIGURE 3. Committees Delegated by the Faculty Board.

B. The Departments

The Departments are the bodies in charge of coordinating the teaching of one or more areas of knowledge in accordance with the teaching programme of the University. In addition, they provide support for the teaching and research activities and also promote the initiatives of the teaching staff. The different Departments are made up of areas of scientific or technical knowledge. At our Faculty, 19 Departments currently have teaching assignments. Three of these Departments are based in the Faculty (Table 5) and the other 16 are based in Santiago. The professors who form part of the Departments in Santiago may have assigned teaching in the Veterinary Faculty and/or in other Faculties found on the Campus in Lugo (Table 6).

DEPARTMENT	ASSIGNED SUBJECTS	HEAD
Anatomy & Animal Production	Anatomy & Embryology (C) Cytology & Histology Rural Economics (C) Ethnology (C) Animal Feeding & Nutrition(C) Animal Husbandry (C) Animal Health & Breeding (C) Anatomy of Birds, Small Mammals and Other Species (E) Clinical Veterinary Ultrasound Scan (E)	Patricia Fernández de Trocóniz Revuelta
Animal Pathology	Physiopathology (C) Epidemiology (C) Parasitology (C) Preventive Veterinary Medicine (C) Reproduction, Obstetrics & Reproductive disorders (C) Veterinary State Medicine, Zoonoses & Public Health (C) Propaedeutics (C) Infectious Diseases (C) Parasitic Diseases (C) Reproductive Biotechnology (E) Clinical Veterinary Ultrasound Scan (E) Medicine of High-producing Dairy Cows (E) Sampling & Clinical Analysis (E) Zoonoses & Public Health (E)	José Luis Benedito Castellote
Veterinary Clinical Sciences	Pathological Anatomy (C) Anaesthetics (C) Clinical Medicine (C) Radiology & Diagnostic Imaging (C) Surgery (C) Clinical Veterinary Ultrasound Scan (E) Medicine & Surgery for Exotics & Wild Species (E) Traumatology & Orthopedics (E) Veterinary Ophthalmology (E)	Andrés Barreiro Lois

TABLE 5. Departments Based in the Veterinary Faculty.
C = core subject, **E** = elective subject

DEPARTMENT	ASSIGNED SUBJECTS	HEAD
Pathological Anatomy & Forensic Sciences	Toxicology (C) Deontology, Legal Medicine & Veterinary Legislation (C)	Angelines Cruz Landeira
Zoology and Physics Anthropology	Animal Biology (C) Applied Zoology (E) Aquaculture (E)	Jose Carlos Otero González
Cell Biology & Ecology	Aquaculture (E)	Jesús Lamas Fernandez
Biochemistry & Molecular Biology	Biochemistry (C) Biochemistry of Organs & Tissues (E) Aquaculture (E)	Jesús Osorio Peláez
Botanics	Plant Biology (C)	Javier Guitián Rivera
Electronics & Computation	Veterinary Health Informatics (E)	Javier Díaz Bruguera
Statistics & Operational Research	Biostatistics (C) Multivariate Analysis Techniques (E)	Wenceslao González Manteiga
Pharmacology	Pharmacology, Pharmacy & Therapeutics (C)	Luis Miguel Botana López
Applied Physics	Biophysics (C)	Jorge Mira Pérez
Physiology	Physiology (C) Animal behaviour (C) Animal Protection & Welfare (C) Aquaculture (E)	Carlos Diéguez González
Microbiology & Parasitology	Immunology (C) Microbiology (C) Aquaculture (E)	M Alicia Caro Estévez Toranzo
Plants Production	Agronomy (C) Production & Maintenance of Forages(E) Toxic or Medicinal Plants & Fungi (O)	Antonio Rigueiro Rodríguez
Analytical Chemistry, Nutrition & Bromatology	Hygiene, Inspection & Food Safety Control (C) Food Technology (C) Identification & Control of Critical Points in the Food Industry (E)	Alberto Cepeda Sáez
Chemistry Physics	Chemistry (C)	Jesús Rodríguez Otero
Organic Chemistry	Chemistry (C)	Carlos Saá Rodríguez
Genetics	Genetics (C) Animal Health & Breeding (C) Animal Genetic Engineering (E) Aquaculture (E)	Gonzalo Álvarez Jurado

TABLE 6. Departments Based in Santiago de Compostela
C = core subject, **E** = elective subject, **O** = optional subject

Each Department elaborates its own Regulations which must be compatible with the USC Statutes. The governing bodies defined by USC Statutes are: the Head of

Department, the Department Secretary and the Department Council (*"Consello de Departamento"*).

- **Head of Department**: The Head of Department is in charge of its management and operation, and also acts as the Department's representative for any events on a University level.

- **The Department Council**: The PhD-holding members of the Academic Staff belonging to that Department, the other non PhD-holding members working full-time in that department, a fluctuating number of representatives elected from within the body of students enrolled in courses in the Department (up to 10% of the total number of members), and one elected member of the Support staff all form part of the Department Council which meets at least once every trimester.

- **The Department Executive Committee**: In addition what has been mentioned above, there is usually an Executive Committee for each Department. This is the working body of the Department and can take the place of the Department Council, if necessary in order to make the day-to-day operation of the Department more efficient. It is composed of several members of the Academic Staff that represent each area or field of knowledge. Support staff and Postgraduate students are also represented.

Management of General Services in the Faculty

The Dean and the Faculty Manager act as line managers of the General Services in the Faculty (Figure 4).

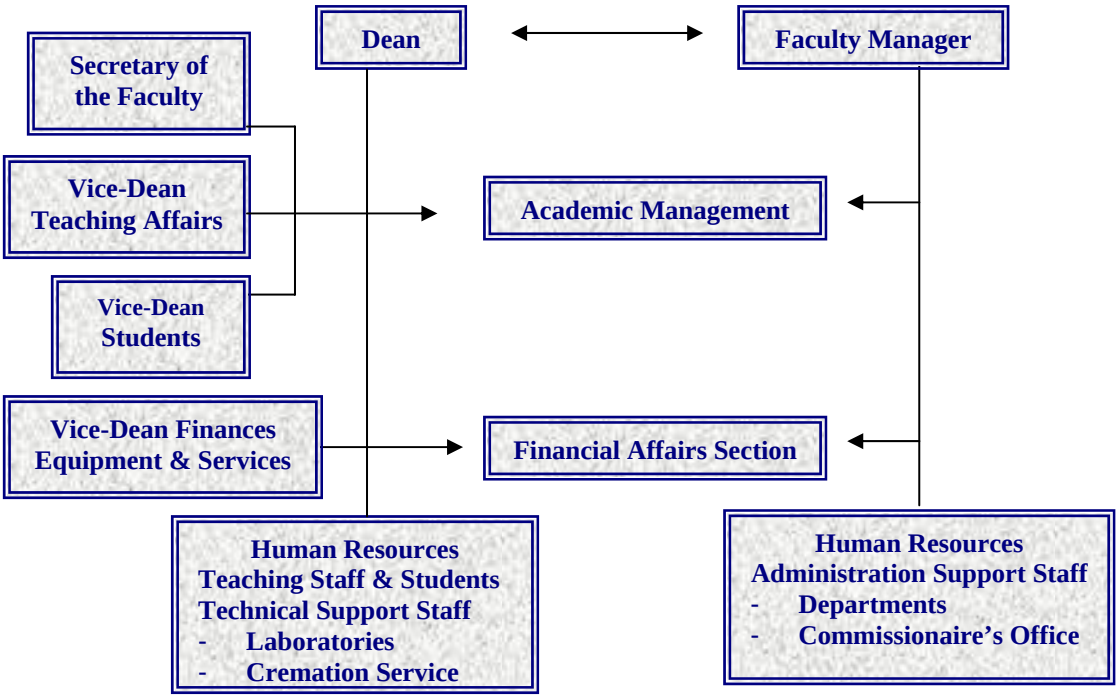


FIGURE 4. Management of General Services in the Faculty

Academic Management: The Dean, with the help of the Dean's Executive Team Secretary and the Vice-Dean for Teaching Affairs, is responsible for the Academic management of the Faculty. These duties include issuing Certificates as necessary, attending to the daily needs of the student body, and such. The Faculty Manager supervises any academic organisation as required by the Vice-Rector's Office and also for the coordination of the obligatory extramural fieldwork done by the students. In addition, the Dean may entrust other specific activities to the Faculty Manager.

Financial Affairs Section: The Dean, with the help of the Vice-Dean of Finances, Equipment & Services, is responsible for administrating the budget for teaching and for research needs, of both the Faculty and the Departments. The Faculty Manager oversees the administrative organisation of this Service.

Human Resources Management: The Dean coordinates the administrative paperwork for all of the Teaching and Support staff at the Faculty as required by the Vice-Rector's Office as well as leave of absence, sick leave, and other administrative formalities for staff joining or leaving the Faculty for stays shorter than 15 days. (Longer stays are approved by the Department and the Vice-Rector's Office for Teaching Affairs). The Dean is also responsible for the administrative paperwork resulting from student exchange programmes. These tasks are done with the help of the Vice-Dean for Students and Exchange Programmes. In addition, the Dean is the human resources manager of the technical support staff working in the laboratories and in the Crematorium Service. The Managing Director is responsible for the human resources management of the general, administrative support staff (administrative secretaries from each Department, Information and Commissionaire's Office and Computer Services).

Information and Commissionaire's Office: Five staff members carry out the duties involved in this office which is in charge of providing general information for staff, students and visitors alike. They also supervise the University's Internal and parcel post Mail Services as well as oversee the correct operation of the basic services (water, electricity, gas, cleaning, classroom equipment, access to computer rooms, etc.)

Cremation Service: Two assistants are responsible for the collection, from farms, small animal clinics, slaughterhouses, and the VTH, of the organs and/or dead bodies that are to be used in the practical classes (Anatomy, Pathological Anatomy, etc.) All the teaching and research material of animal origin must be incinerated in the Faculty's Crematorium. Moreover, the Crematorium also provides a general service for the correct disposal of any animal and/or biological waste used in practical classes or research work done in other USC centres.

The Veterinary Teaching Hospital "*Rof Codina*" (VTH): The VTH is a General University Service and was founded to support teaching and research work done at the Faculty. A non-profit Foundation sponsored its creation in 1994. The *Rof-Codina* Foundation receives financing from the Galician Government (Galician Ministries of

Education, Health, Agriculture and Environment), the USC, the Provincial Council of Lugo and the City Council of Lugo.

The organisational and functional regime of the VTH is governed by its own General Regulations included in its letter of foundation. Its administrative and financial management is independent of the Faculty, but at the same time, it is strategically coordinated with the Faculty as *per* the agreement established by the *Rof Codina* Foundation and the USC. The VTH government body is the *Rof Codina* Foundation Board.

***Rof Codina* Foundation Board**: ("*Patronato da Fundación*") It approves all the decisions affecting the VTH management, including the annual budget. This board is composed of 17 members, who include the **Chairman** (the Minister of Education of the Galician Government), and the **Vice-President** (the Rector of the USC). The other members are: the President of the Provincial Council of Lugo, two members of the Provincial Government, the Mayor of Lugo, two City Council members, four Delegates from the Galician Ministries of Education, Health, Agriculture and Environment, the Dean of the Veterinary Faculty, the VTH Veterinary Director, the Treasurer, and the VTH Executive Manager. There is also an honorary member, a relative of *Juan Rof Codina*, who was the noted veterinarian that worked in Lugo in the 20th century and after whom the VTH is named. This Board meets at least once every six months.

Monitoring Committee: ("*Comisión de seguimiento*") With two to three annual meetings, this committee seeks to promote and make possible the fulfilment of the VTH mission statement, particularly as applies to teaching. It is in charge of the management of the academic staff and the research developed in the VTH, and transmits all the relevant needs to the Foundation Board. This Committee is composed of four University members (the Rector, the Vice-Rector for the Lugo Campus, the Dean of the Veterinary Faculty, and the VTH Veterinary Director) and four Foundation Board members.

Management Committee: ("*Comisión de Direción*") This is a delegated Committee that meets twice a month to decide on the day-to-day operation of the Hospital, its Services, and its members (Interns, Scholarship holders, etc.) It is made up of the Executive manager, the VTH Veterinary Director, one representative of the teachers working at the clinics, one representative of the Veterinarians contracted to collaborate with clinical assistance, and one representative of the Support Staff.

Advisory Committee for Research and Teaching Affairs: ("*Comisión Consultiva de Investigación y Docencia*") This delegated Committee, that meets twice a year, works to verify and control the teaching and research work developed at the Hospital, and is composed of the VTH Veterinary Director, the Dean of the Veterinary Faculty and the Directors of those Departments covering the major veterinary areas.

The VTH Executive Team includes an Executive Manager that is in charge of all entrepreneurial aspects (administration, finances, facilities, equipment, admission, etc) and a Veterinary Director, who is elected from among those teachers doing clinical

activities. His/her duties are to optimise the use of the clinical services not only with respect to the assistance provided for the general public, but also with respect to the services used in teaching, as well to perform a follow-up on all the teaching activities developed. In addition, the Veterinary Director is responsible for implementing the Faculty decisions affecting clinical teaching at the VTH. Thus, the Veterinary Director is the link between the hospital management and the teaching bodies of the Faculty. According to the VTH Regulations, the Executive Manager does not have to be associated with the University; however, it has been our experience that a connection to the USC allows for greater understanding among all those implicated.

The VTH is structured into different Clinical Services. All academic and technical staff must belong to a clinical service area which corresponds to their field of knowledge. Currently, these services are: Surgery and Anaesthesia, Internal Medicine, and Central Services. The latter includes the Diagnostic Imaging Service, the Pathological Anatomy Service, the Reproduction Service, the Clinical Laboratory Service, the Pharmacy, and the *on-line* Toxicology Veterinary Service (SATVe). For further information see chapter 6. In addition to these, there are two interconnected units: the Equine Unit and the Farm Animal Mobile Clinic.

Figure 5 summarises the organisation and management of the VTH.

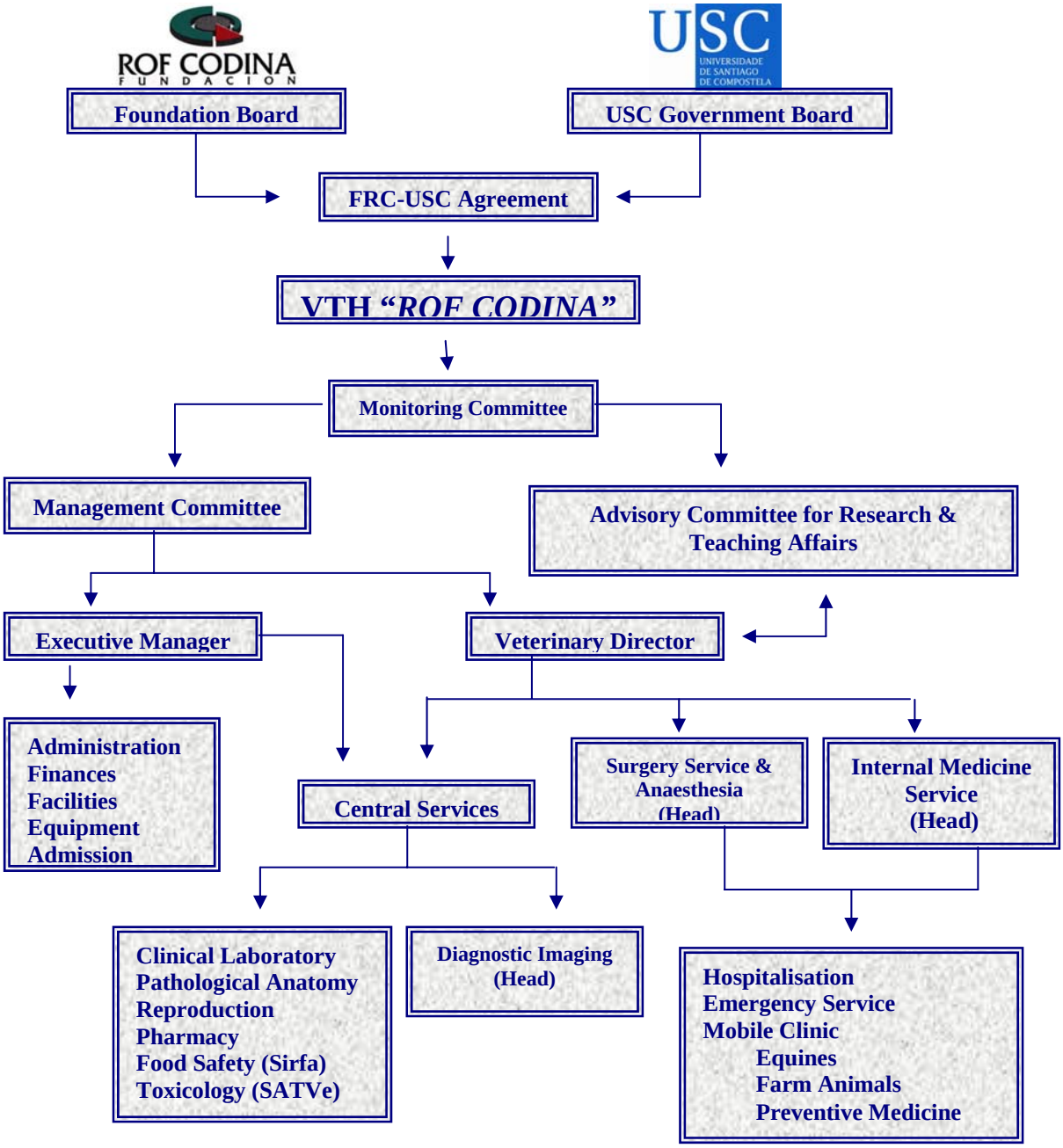


FIGURE 5. VTH Organisation & Management

Management of the General Services on a Inter-Faculty Level

The remaining eight USC centres on the Lugo Campus share some Inter-Faculty General Services (other General Services are located on the Santiago Campus). They are briefly described as follows and summarised in Table 7.

Library: The Inter-Centre Library (BUSC) is endowed with 22 support staff people. For details on its management, see Chapter 8.

Academic Registrar's Office (UXA): This Inter-Faculty service, with a staff of 11, supervises the administrative admission and enrolment of students. It is also in charge of granting all official USC academic documents for undergraduates and postgraduates. For details on its management, see Chapter 9.

Centre for Scientific & Technological Support (CACTUS): This Service is endowed with nine Support Staff and a Coordinator that forms part of the Teaching staff at the Faculty. The various services it offers include: Microscopy (scanning and transmission electron microscopy, confocal microscopy, laser microdissection unit), Flow Cytometry (analytical, separative and laser scanning citometry), structural analysis (RMN, IR-FT and differential scanning calorimetry), elemental analysis (CNO analyzer, ICP-EOS and ICP-MS), as well as HPLC-MS.

Laboratory Animal Facility: This service has two support staff members and a Veterinarian who is a member of the teaching staff at the Faculty; it offers proper housing and husbandry services for the laboratory animals (rats, mice, rabbits, and fish) and algae used in the research work carried out on all of the USC's Campuses. The animals are also acquired for use by other public and/or private entities.

GENERAL SERVICES AT THE FACULTY	
Faculty Manager	Ana Mª Brao Viña
Financial Affairs Section	Ana Mª Serén Blanco
Information & Commissionaire's Office	José Antonio Ayán Rodríguez
Crematorium	José Antonio Rivas Couto
Veterinary Teaching Hospital "*Rof Codina*"	
- Executive Manager	Luís Felipe de la Cruz Palomino
- Veterinary Director	Mª Luisa Suárez Rey
INTER-FACULTY GENERAL SERVICES, LUGO CAMPUS	
Library	Mª Julia Cantalapiedra Álvarez
Academic Registrar's Office (UXA)	Ana Mª Codesal Grandío
Centre for Scientific & Technological Support (CACTUS)	Jesús Casabiell Pintos
Laboratory Animal Facility	Jesús Casabiell Pintos

TABLE 7. Heads of Administrative & Research General Service Offices

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

The **USC's Social Development Council** (*"Consello Social"*) is the organ that serves as a liaison between the University and the community. This council provides a forum for the exchange of ideas between the University and the Galician society. Its aim is to achieve better quality teaching, reinforce the research capacity and encourage the social, economic, and cultural progress of our society. It is the responsibility of the Social Development Council to supervise the financial activities of the University and the performance of its services, and also to promote the collaboration of 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 University activities. In addition, it develops programmes for the employment of USC graduates all throughout Europe ("*Europracticum*"), Conferences, and such. The Social Development Council is composed of representatives of different social interest groups (political groups, trade unions representatives, companies) who do not have to be members of the University Community. More details can be found in the USC website: http://www.usc.es/csocial/en/benvida.php?id=en&PHPSESSID=50afa79d5c5fb4f0bfd55dc6456f484d

As for the Veterinary Faculty, in order to gain feed-back from the Veterinary profession, the Governing Bodies of the Faculty have regular meetings with representatives of Veterinarian Practitioners to incorporate the interests and needs of these professionals into the teaching and research programmes being offered at the Veterinary Faculty. Moreover, one of the members of the Governing Board of the Official College of Veterinarians in Lugo (*"Ilustre Colexio Oficial de Veterinarios de Lugo")* has a teaching position at the Veterinary Faculty, and acts as intermediary/link between both Institutions, in order to guarantee fluent collaboration and communication.

In addition, many of the Faculty's teaching staff members form part of the Governing Boards of various regional and national Professional Associations. This fact not only helps to guarantee a close working relationship between these associations and the Faculty, it also helps the Faculty members to have a better and more up-to-date understanding of the real world experience that these professionals can share with them.

The VTH also has 18 agreements with different Associations, Foundations and public or private Institutions (http://www.usc.es/rofcodina/frc.convenios.htm) that seek to develop specific programmes of assistance and/or research activities.

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

The Dean is elected by the Faculty Board as *per* Article 102.2 of the *USC Statutes* and as *per* Articles 28-30 of the *Veterinary Faculty Regulations*. He/she must be a tenured teacher with a full-time position and must be willing to hold this position for a four-year term. The Dean may be re-elected only once.

The Dean's Executive Team is proposed by the Dean and after the Dean is elected, they are appointed by the Rector (as Articles 104-105 of the *USC Statutes* dictate). They may be introduced by the Dean before the election, or the Dean may choose to make their names known after the election has taken place.

The Heads of Department are elected by the Department Council from among all the PhD-holding members of the Department as *per* Article 110 of the *USC Statutes*. The Head of Department holds his/her position for a four-year term and may be re-elected only once.

The Executive Manager of the VTH is proposed by the President of the *Rof Codina* Foundation and then appointed by the Foundation Board.

The Veterinary Director of the VTH is nominated by the Rector from among the three candidates proposed by the Monitoring Committee just as the *USC-Rof Codina Foundation Agreement Regulations* (Art. 9b) indicate. The candidates must be professors who participate in clinical casework at the VTH.

2. COMMENTS

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

Brief Explanation on the Educational System in Spain

The University Organic Law (LOU, 2001 amended in 2007) was directed toward a complete reform of the educational system in Spain. Associated reforms include: obligatory basic general education for 3 to 16 year-old students, elimination of rural/urban differences in educational opportunity, equal access to University education, University autonomy, and the creation of new Universities. Student financial aid is also to be better provided in a broad variety of scholarships, loans and other grants.

University education proper may be undertaken in the Universities or in advanced Technical Education schools. A recent law, still under development, establishes two stages in higher education: an Undergraduate level of full time theory and practical classes to grant a Diploma (2 years in short-cycle degrees) or a Graduate Degree =

Bachelor's Degree (4 or 5 years in long cycle-degrees, 5 years in the case of the Degree in Veterinary Medicine). These qualifications will enable them to work in their field of competency. There is also Postgraduate level in which graduate students may follow some type of specialization (Master Degree) and/or preparation for research work leading to the defence of their Doctoral Dissertation (PhD degree).

3. SUGGESTIONS

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

3.1. Foreseen and/or Desirable Changes

To a certain extent, problems in coordination may, and often do, arise due to the fact that teaching is organised in a parallel manner by both the Faculty and by the Departments. The Departments are responsible for the teaching and the Faculty organises and controls the teaching duties. Thus, when a problem arises, the mechanisms of change must be agreed upon with the Departments and, on occasion, it is this actual process of reaching an agreement that slows down its being solved.

Moreover, it would be convenient to achieve a more homogeneous departmental structure within the areas of knowledge involved in the teaching at the Faculty. We also think it advisable for the Departments to be based in Lugo. This would not mean an end to the contact and collaboration with the Departments in Santiago, but rather the opposite. From our point of view, it is important to be on good terms and in close contact with the Departments even though because of the USC organization, they are predominantly based in Santiago. However, the *USC Statutes* also allow for the creation of Department Sections, as well as the grouping of professors from different areas of knowledge to create a new Department.

There are no formal arrangements or provisions enabling the Veterinary Faculty to gain feed-back from Veterinary professionals. We believe that this is a major short-coming that must be solved in the near future. One suggestion might be to create an "Advisory Council" formed by veterinary professionals that would regularly meet with the Governing Bodies of the Faculty in order to make the interaction between the academic and the professional communities more fluent.

3. FINANCES

CHAPTER 3. FINANCES

1. FACTUAL INFORMATION

3.1. EXPENDITURE

The total expenditure of the Veterinary Faculty is about 10 million €/year of which 67% accounts for staff salaries, 25% is for operating costs, 5.4% for equipment and 2.6% for the maintenance of the buildings. A detailed financial analysis of the expenditures is shown in Table 8 and Figure 6.

Concept	USC	VTH-Rof Codina
a. Personnel		
a.1 Teaching staff [1]	4,068,613.00	199,931.90
a.2 Support staff [2]	1,311,400.32	240,986.79
a.3 Research staff [3]	750,412.00	27,065.17
Total for a	**6,130,425.32**	**467,983.86**
	6,598,409.18€	
b. Operating Costs		
b.1 Utilities [4]	337,716.00	46,428.46
b.2 Expenditure relating specifically to teaching [5]	178,840.32	375,931.79
b.3 Expenditure relating specifically to research [6]	981,028.00	29,094.89
b.4 General operations (not icluding the above) [7]	423,526.00	89,119.24
Total for b	**1,921,110.32**	**540,574.38**
	2,461,684.70€	
c. Equipment		
c.1 Teaching [8]	52,645.00	35,301.36
c.2 Research [9]	417,298.00	8,482.73
c.3 General (common) equipment [10]	17,838.72	4,844.06
Total for c	**487,781.72**	**48,628.15**
	536,409.87	
d. Maintenance of Buildings [11]	**96,592.95**	**158,850.07**
Total for d	**255,443.02**	
e. Total Expenditure	**8,635,910.31**	**1,216,036.46**
TOTAL	**9,851,946.77€**	

TABLE 8. Annual Expenditure of the Faculty in the Fiscal Year 2006 (Academic Year 2006-07)

[1] Gross costs—including contributions—of Full and Associate professors, Contracted professors and payment for substitute teachers (USC). Gross costs of extra payment for the assistance done by the Teaching Staff linked to the Services at the Hospital, and full cost of Interns (VTH).

[2] Gross costs of Support staff including contributions.

[3] Gross costs of scholarship holders enrolled in post-graduate PhD programmes, technicians and PhDs contracted by research projects or Galician programmes ("Parga Pondal").

[4] Sum of expenditure on water, electricity, gas, fuel, telephone, chemical and biological waste disposal, etc.

[5] Sum of ordinary costs, student contributions and expenses for VTH and depreciation of instrumentation used for teaching, calculated on a seven-year basis (vehicles, necropsy room freezer).

[6] Sum of research expeditures discounting those of staff and equipment.

[7] Sum of expenditure for Departments and Dean's office, gardening, cleaning, security services and annual depreciation of the Crematorium on a seven-year basis.

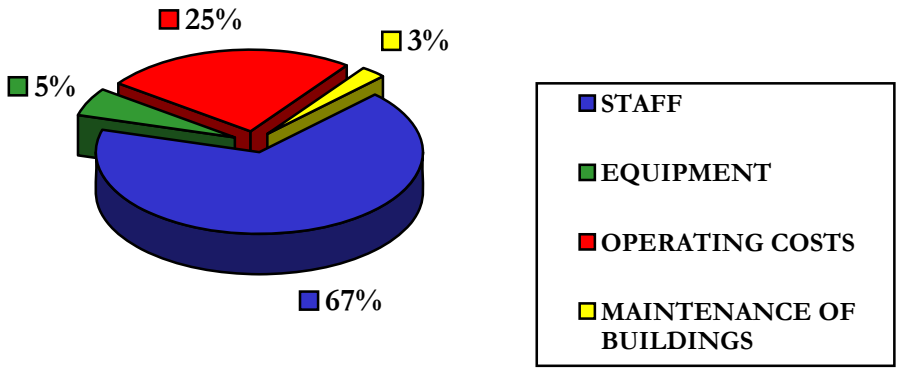
[8] Annual cost of equipment for teaching.

[9] Instrumentation used for research work adquired in 2006.

[10] Anti-*Legionella* adaptation of Pavilion III.

[11] Cost for the annual maintenance of buildings.

FIGURE 6. General Budget



With regard to cost/year/student calculations, it should be pointed out that the total number of students can be classified into two categories: on-course students and off-course students. The former category refers to undergraduates in one of the five years of their coursework, whereas the latter are those students who have not succeeded in completing their coursework in 5 years and still have exams to sit, although in most cases they no longer attend lectures or practical classes.

The total number of undergraduates in the academic year 2006-07 was 960: 595 on-course (f, g, h, i, j in Table 30 of Chapter 9) and 365 off-course (k, l in Table 30 of Chapter 9). Therefore, we calculate the cost of training considering all the undergraduates, and alternatively only those on course.

TABLE 9. Cost of Veterinary Training Data for All Students Enrolled	Euros
1. Annual direct cost of training a student [12]	**6,837.13**
2. Direct cost of training for a diploma [13]	**54,697.09**

[12]

$$\text{Cost} = \frac{a1 + a2 + b2 + c1}{\text{Number of students in undergraduate training}} = \frac{6{,}563{,}650.48}{960}$$

a1, a2, b2 and c1 are given in Table 8. The number of students in undergraduate training is 960.

[13] This cost is obtained by multiplying the direct annual cost of training a student by the average number of years of training for a student. An average of **8 years** was estimated in Chapter 9 (Table 35 Average duration of studies).

TABLE 10. Cost of Veterinary Training Data for On-course Students Only	Euros
1. Annual direct cost of training a student [14]	**11,031.34**
2. Direct cost of training for a diploma [15]	**55,156.73**

[14]

$$\text{Cost} = \frac{a1 + a2 + b2 + c1}{\text{Number of on course students in undergraduate training}} = \frac{6{,}563{,}650.48}{595}$$

a1, a2, b2 and c1 are given in Table 8. The number of on-course students in undergraduate training is 595.

[15] This cost is obtained by multiplying the direct annual cost of training a student by **5 years** of training *per* student.

3.2. REVENUES

A detailed financial analysis of the revenues shows that only 56% of this amount came from state or public funding. The other 44% is obtained from research activities (2.3 million €, 28%), clinical activities and diagnostic services (0.5 million €, 6.6%) and minor sources. Details about all income are shown in Table 11.

Concept	USC	VTH
a. Revenue from the State or Public Authorities [16]	4,031,952.00	687,710.01
b. Revenue from Private Bodies	877,401.00[17]	19,815.18
c. Revenue from Research	2,317,740.00	40,462.01
d. Revenue earned and retained by the USC [18]		
d.1. Registration fees from students	624,068.00	0.00
d.2. Revenue from continuing education	90,974.40	11,785.98
d.3. Revenue from clinical activities		255,640.78
d.4. Revenue from diagnostic activities	197,371.32	103,400.83
e. Revenue from other sources		16,272.30
e.1. Renting of classrooms and Auditorium	9,361.00	
f. Total Revenues from All Sources	**7,271,466.72**	**1,135,087.09**
TOTAL	**8,406,553.81**	

TABLE 11. Annual Revenues of the Faculty in the Fiscal Year 2006 (Academic Year 2006-07)

[16] Sum of ordinary funding only.

[17] This figure is included in c since all USC revenues from private bodies come from research, and thus, it is not included in the calculations of total revenues.

[18] Sum of revenues without any retention by the USC.

The public funding from the XUNTA is the ordinary funding distributed among the three Galician Universities according to the number of students, teachers and centres. Table 12 shows the evolution of these funds over the past five years as they went from the Galician Government to the USC and from the USC to the Veterinary Faculty. The amounts fluxuate according to the number of students enrolled.

Fiscal Year Academic Year	2006 2006/2007	2005 2005/2006	2004 2004/2005	2003 2003/2004	2002 2002/2003
Income from Galician Government to the USC	121.609.540,25	109.879.319,92	103.730.504,23	96.069.101,97	98.723.488,29
# Undergraduate Students USC	28.955	30.140	31.862	33.370	35.113
Income from USC to the Veterinary Faculty	4.031.951,60	3.590.946,59	3.512.811,94	3.132.250,01	3.323.303,71
# Undergraduate Students Veterinary	960	985	1.079	1.088	1.182

TABLE 12. Changes in Public Funding

The public funding of the VTH in 2006 (**687,710.01€**) accounts for 60% of the total income; in 2007, public funding accounts for 55% (**820,300.00€**). Figure 7 shows the changes in the total income of the VTH.

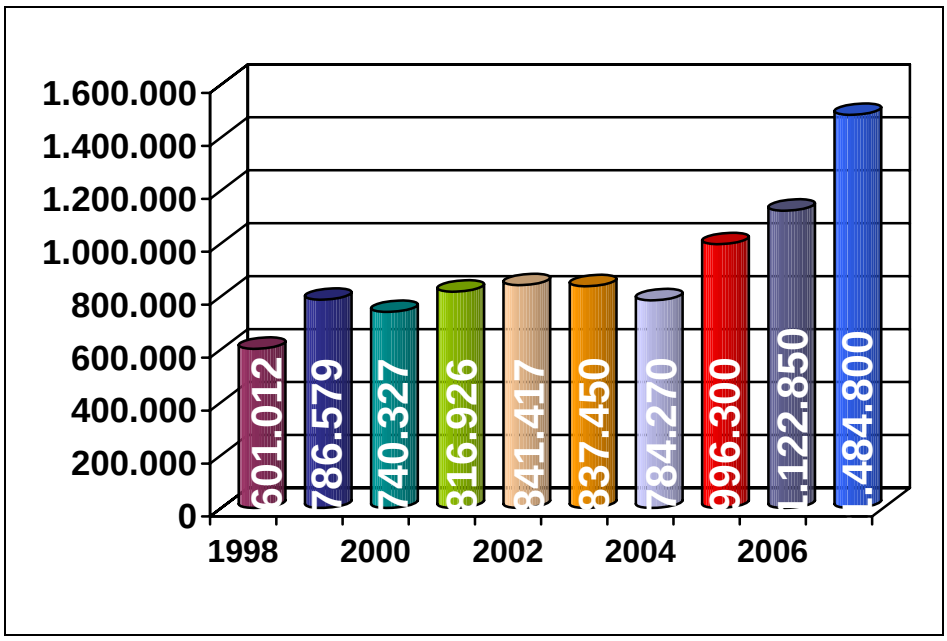


FIGURE 7. Changes in Total Income of VTH from 1998 to 2007

What percentage of income from the following sources does the veterinary teaching establishment have to give to other bodies (university, etc.)?
Clinical work:
Analysis for commercial clients:
Analysis for veterinary practitioners:
Research grants
Other (please explain):

A part of the revenues must be returned to the USC. These returns can be classified as follows:

- **Clinical Services**: 10% of the total invoicing of the VTH is given to the USC management service.
- **Diagnostic Services, External Services** (Art. 83 LOU): 10% of the total invoicing is given to the USC.
- **Research Grants/Projects**: 10-19% of the grant is given to the USC as overhead depending on the source of the funding. This overhead is distributed in the same way as diagnostic services. In addition, the USC discounts 20% of the payment to teachers for their research services.
- **Other Revenues** (Continuing Education courses and diplomas): Ten percent of the registration fees go to the USC.

The USC subtracts the percentage detailed from the total income. The rest is assigned to the Faculty, VTH, or Coordinator of the Research Project/Service, either for a specific end or for management.

Indicate the proportion of additional income that is retained within the institution in each case.

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.

The University Organic Law (LOU) states that the economic and financial autonomy of the Universities is a fundamental issue. In this context, the law establishes the essential right of each University to be autonomous in the drawing up, approval, and management of its budgets and in the administration of its assets. The Veterinary Faculty, just like other USC 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.

The budget of the USC is annual, per calendar year (1 January to 31 December), not per academic year (1 October to 30 September). Most of the USC budget (61.3% including fees from the students) comes from the Government of the Galician Autonomous Community (XUNTA). The model of distribution used by the XUNTA is based mainly on the number of students, teachers and centres of every Galician University. Initial approval of the budget (project stage) is given by the USC Board ("*Claustro da USC*"), under the proposal of the Vice-Rector for Economic Planning, which then submits it for final approval to the USC's Social Development Council.

The USC authority (Vice-Rector for Economic Planning) distributes the budget to the Faculties and Departments (see below). The distribution to the Faculties is based on the criteria approved by the Government Board: the number of teachers and support staff and the number of students corrected with a coefficient that takes into account the higher operating costs of health and life sciences schools.

In 2006, the USC budget was **198,196,170.00€**, with the estimated total costs financed from the following income sources:

A. "*Fees, public prices and services*": 37,528,000.00€ (18.93%). Income from fees and public prices is decided by the *Galician Autonomous Community*.

B. *"Ordinary transfers"* *(to finance ordinary expenses):* **125,155,400.00€** (63.15%). 95% of these transfers come from the Galician Government.

C. "*Patrimonial incomes*": 372,000.00€ (0.19%).

D. *"Capital transfers"* *(to finance capital and investment expenditure):* **29,786,500.00€** (15.03%). 85% of this transfer comes from public Research Programmes.

E. *"Others"*: 5,354,270.00€ (2.70%).

It is important to point out that of the total transfers, only 10% come from companies in the private sector; thus it can be confirmed without doubt that the USC depends almost completely on public funding.

As we said before, it is important to distinguish between those areas which are managed and paid directly by the Faculty, and the ones managed by the Vice-Rector's Economic Office.

ORDINARY EXPENDITURE: Direct Management by the Faculty

The USC channels annual funds to the Faculty for its direct management which are to cover part of the so-called *Ordinary Expenditure* on goods and services (those which are not provided by the Central Services of the USC). This annual endowment is calculated by means of a model which is based on the following criteria and percentages:

- An amount which adds up to 35% of the total amount available for distribution is given to each Centre within the USC according to the number of teaching staff.
- 24.5% according to the number of credits in the degree.
- 10.5% according to the number of credits in which students are enrolled.
- 18% according to the surface area of the centres.
- 18% according to the number of students.

Additionally, those Centres with a high level of experimental practical classes, as is the case of the Veterinary Degree, receive 20% more income per credit of practical classes than other non-experimental degree courses (e.g. Humanities Degree). Also, the Vice-Rector for Quality Assurance contributes some funding to those Faculties submitting requests for the improvement of teaching quality (in 2006 this resulted in 27,000€ extra income for our Faculty.) Finally, the Vice-Rector for ESHE supplies a certain amount of extra funding to develop the extramural fieldwork programme (in 2006 this meant 14.000€ extra income for our Faculty).

Based on these criteria, the annual amount for *Ordinary Expenditure* received by the Faculty in 2006 was **213,027.71€.** The Faculty Board agreed to allocate it as follows:

- **Centralised Faculty Services (54.94% : 117,031.85€):**
    - Maintenance of buildings: 32,661.86€
    - Maintenance of classrooms: 31,945.54€
    - Communications: 20,767.29€
    - Extramural Fieldwork & Vehicles: 15,895.59€
    - Dean's Office: 13,784.08€
    - Student Associations: 1,977.49€

- **Subjects (45.06% : 95,995.87 €)** This amount for teaching is distributed among the different subjects according to the number of students enrolled and the number of FTE teaching staff in every subject, (the final sum given has been corrected with a coefficient as per USC Regulations).
    - General operating costs related to teaching: 61,832.28€
    - Equipment related to teaching: 34,163.59€

As regards the VTH, the University pays some utility related costs (like electricity and heating) as well as the salaries of the teaching staff linked to its Hospital Services. All other expenses (including equipment purchase and maintenance, remodelling of the premises, salaries of interns, extra payment for the assistance done by teaching staff or additional support staff, etc) are compensated with the payments for Clinical Services and the funds appropriated by the *Rof Codina* Foundation. The Management Committee receives new requests for facilities and equipment on an annual basis from the different Services. This Committee then elaborates a budget proposal that must be approved by the *Rof Codina* Foundation Board.

Concerning the Departments, the USC allots the corresponding budget for ordinary expenditure, research work and Doctorate programmes to the Departments according to the number of students enrolled, the scientific production during the year, and etc. Then, the Department deducts its operating costs and distributes the corresponding money for research work according to the merits that the staff has achieved (papers published, Ph.Ds, etc.) and the money for Doctorate programmes according to the number of credits and of graduate students enrolled.

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

CAPITAL EXPENDITURE: Centralised Management by the Vice-Rector's Office

The USC decides which infrastructure projects can be carried out and charged to the USC's Annual Investment Plan, as well as repair, maintenance or safety tasks which have to be undertaken because they are strictly necessary or urgent. The Dean and

his/her Executive Team decide on the priorities for funding capital expenditure and submit them to the USC Vice-Rector for Capital Facilities & Equipment on an annual basis. Final decisions are taken after the evaluation of all the requests put in by USC Centres depending on budget availability.

In this context the following major maintenance projects were carried out in our Faculty during 2006:

- Renewal of plumbing in Pavilion III: 18,614.09€.
- Anti-*Legionella* installation in Dissection Room and Necropsy Room: 17,838.72€.
- Installation of a Commissionaire's Office in the Classroom Pavilion: 4,546.00€
- Repair of cafeteria access: 2,400.00€
- Repair of stairs to access the Central Pavilion: 8,600.00€.
- Repair of humidity in Pavilion III: 1,432.00€.
- Drain cleaning: 2,504.00€.
- Adaptation of classroom in basement to the handicapped: 5,800.00€.
- Water-proof ceiling in Anatomy: 6,980.00€.
- Adaptation of toilets in the Auditorium to the handicapped: 6,100.00€
- Gutter cleaning: 3,335.00€.

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

All the students pay registration fees. For the academic year 2006-07, the student enrolment fee was 13.17 €/credit + 25 € for administrative costs (an average of 605€/student/year). For students who have to retake a subject, this fee increases every time they have to enrol in it again.

Fees for higher education are established by the Government of the Galician Autonomous Community and kept between the limits proposed by the Spanish Ministry of Education. The USC annually approves the budget including all the revenues (public funding from the government, registration fees, public or private revenues for research work, etc). Every Centre receives a proportional budget for ordinary expenditures and the rest of their expenditures (staff salaries, services and work contracted out to external companies, maintenance services, waste collection and others) which are, thus, paid directly by the USC.

2. COMMENTS

Teaching establishments never have enough finances. 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 main difficulties concerning the present financial situation are:

a) Staff:
- In spite of the fact that both the Spanish and the Galician governments give productivity bonuses for Teaching (every five years) and Research (every six years) to staff members holding a permanent position, and that having a permanent post means that these civil servants have high job stability, salaries for teachers are not yet equivalent to those of similarly trained professionals working in the private sector. This fact especially affects non-permanent staff and makes it difficult to recruit potential teaching and research staff who are looking for this condition. In addition, under the current Spanish law all University Professors have teaching and research duties and a better teacher/student ratio will improve the equilibrium between time spent on teaching and research activities.

-The public University funding that is available for support staff is insufficient. About 65% of the Faculty and VTH support staff is dedicated to general services, administration, maintenance, etc, while 24% is dedicated to research work, and only 11% is responsible for the care and treatment of animals and for the preparation of practical and clinical teaching sessions. That means extra work for the teaching staff in order to prepare the practices and carry out their research projects.

- The public funding available to the Faculty for Postgraduate students, and particularly those in clinical positions, is meagre. For instance, during the academic year 2006-07 at the VTH, 14 internships were paid out of the VTH's own budget, while eight were paid for by other bodies. In 2007, the Faculty has 46 Postgraduate students doing research work; only 6 receive grants or are contracted with public funds and the remaining forty are paid with private funding coming from research projects. Thus, this public funding is clearly insufficient for the capacity of our Faculty.

b) Operating costs:
- The 2006 Faculty budget allotment for teaching only took care of 80% of the calculated cost for practical classes, and this does not even take into account the entire expenditure for teaching at the VTH. Moreover, this budget actually did not fund the

extramural fieldwork programmes since the Practitioners that tutorised the students were not paid. Commonly, the different subjects pay around 20% of the teaching costs with research funds. These are top priorities for us in the near future.

- The University provides some money for innovative teaching projects and/or projects aimed at improving teaching, but the seed money for research projects is extremely scarce. The Departments get most of their research money from competitive proposals submitted to and approved by the European, Spanish or Galician governments or from private companies.

c) Equipment:

- In a broad sense, the funding to buy or renew the teaching, laboratory, and clinical equipment is always in short supply with respect to keeping all the equipment up-to-date. The USC allocates some funds for these purposes, especially for teaching, and tries to support Faculties and Departments with what they need. However, this financial backing is not enough to account for it all. Actions to get more private support or funding from charities may help to alleviate these problems.

While all of the things just mentioned, might be considered as high priorities for funding, we believe that those related with personnel and resources for practical, clinical and extramural teaching, as included in the operating costs section, are indeed the most crucial. As might be deduced from the preceding comments, in the present financial situation our complaint is that the total amount of funding needs to be increased. The degree of autonomy that the Faculty has in financial matters is high; however, more flexibility in the administrative procedures would help to decrease costs (e.g. the USC does not allow Internet purchases). The only income that we can consider to be entirely our own is what we charge when we rent out the facilities (i.e. classrooms and Auditorium). Other income, such as that from research projects or Postgraduate Courses (Continuing Education), is managed by the project or course director so as to cover their own requirements and, hence, is not applied to the general requirements of the Faculty.

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 USC funding comes from Public Sources. Nonetheless, from the comments mentioned above, it is clear that some action should be taken to correct certain problems. Our main suggestions are:

a) To negotiate a redistribution of the Support Staff with the USC. This negotiation must consider all the income yielded by the research and services of the Faculty.

b) To increase external (private or charity) financial backing. This can be done by promoting services to outside professionals, industries, etc. and by actively interacting with charity organisations. This extra funding should be allocated to operating costs, teaching, and equipment on the one hand, but also be dedicated to increasing the number of internships, residencies and scholarship holders for PhD Programmes.

c) To make the management of expenditures in the USC more flexible, i.e., by making payment by credit card possible.

4. CURRICULUM

CHAPTER 4. CURRICULUM

1. FACTUAL INFORMATION

Indicate whether there is a 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 change 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.

All studies in higher education in Spain are regulated by the University Organic Law (LOU) and the "General Guidelines of the Curricula Leading to Official University Degrees" as dictated by other Spanish legislation. The centralised educational administration, as mandated by Spanish Parliament, has been adapted to a decentralised model that divides educational competences; thus, the Ministry of Education and Science (MEC) reserves the functions of the legislation and coordination of the Spanish Education System while the various Autonomous Communities, such as the Galician Autonomous Government, have the political competences required to finance public Universities and also to develop minor legislation. The latter makes it possible for the Universities to have some say in developing curricula.

The current curriculum of the Veterinary Faculty in Lugo, was officially approved by Spanish Parliament (Resolution of November 6th, 2000 (BOE 4/12/2000), and was based on the following legislation: Directive 1978/1027/EEC (which has since been replaced by Directive 2005/36/EU) governing basic veterinary training in the European Union countries; Royal Decree 1497/87 (BOE 14/12/87) outlining the general guidelines of the common curricula of all the University degrees with official status and validity throughout Spain and subsequent amendments (RD 1267/94; RD 2347/96; RD 614/97; RD 1561/97, 779/98 and RD 1651/98); Royal Decree 1384/91 (BOE 30/09/91) about the establishment of the University Degree of Bachelor in Veterinary Medicine and the general guidelines specific to the curriculum leading to its granting; USC Statutes (DOG 29/12/97, BOE 22/07/98) and the rules for development of the *USC Curriculum Leading to a Degree* (approved by the University Government Board 16/06/97).

As dictated by the above legislation, the 2000 Curriculum is structured in two cycles. The first cycle (1st and 2nd year) includes basic teaching and general training while the second cycle (3rd, 4th and 5th year) is devoted to a pre-specialisation and preparation for professional activity.

As shown in Table 13, the syllabus is made up of a total of 400 credits (385 credits in which 1 credit=10 hours and 15 credits in which 1 credit=30 hours). 80% (320 credits) correspond to core subjects (mandatory for all students), 10% (40 credits) to electives (as designated by each Faculty) and 10% (40 credits) in optional subjects (students choose them from all the ones offered by the USC, which allows for a more flexible curriculum). The 320 credits in core subjects include 15 credits of obligatory extramural work (pre-professional fieldwork) in which 1 credit=30 hours. This makes a total of 4,300 hours: 3,500 hours in core subject training (305 x 10 + 15 x 30), 400 hours in elective subjects and 400 hours in optional subjects.

TABLE 13. Overall Structure and Organization of the 2000 Curriculum

CYCLE	YEAR	CREDITS IN CORE SUBJECTS (CCS)	CCS LECTURES	CCS PRACTICES	ELECTIVE SUBJECTS[A]	OPTIONAL SUBJECTS	TOTAL
I	1º	**72.5**	38.5	34.0	6	0	**78.5**
	2º	**58.5**	31.5	27.0	4.5	24	**87**
II	3º	**62.0**	31.5	30.5	8	8	**78**
	4º	**53.5**	30.0	23.5	16	8	**77.5**
	5º	**73.5**	36.5	37.0[(b)]	5.5	0	**79**
TOTAL		**320**	168	152	**40**	**40**	**400**

(A) As amended by resolution taken on April 19th, 2006 (BOE 18/5/06)
(B) Includes 15 credits of Obligatory extramural work (Pre-professional fieldwork, 1 credit=30 hours)

The first cycle includes training for 37.5% of the core subjects (131 credits), 25% of the elective subjects (10.5 credits) and 60% of the optional subjects (24 credits). To have access to the second cycle students must have successfully completed 70% (92 credits) of the first cycle core subjects.

The second cycle provides training for 62.5% of the core subjects (189 credits); this total includes 450 hours that are to be done in the subject *Obligatory extramural fieldwork*. Students can only participate in it when they have completed 100% of the 1st, 2nd and 3rd year core subjects. Hence, this means that they may not be able to do it until the summer after their 4th or the 5th year, since this subject is organised in full-time pre-professional practices that cannot occur simultaneously with the lectures or practical classes for their academic coursework.

Of the 3,500 total hours in core subjects, 1,680 correspond to theoretical activity and the rest (58%) to the practical classes (ratio 1:1.08). In the case of elective and optional subjects, the proportion of theoretical to practical classes varies depending on the given field; (for instance, the subject *Practices at the Lugo Society for Animal Charity* is 100% practical classes).

In connection with important decisions made by the management of the Faculty, or by the authorities responsible for it, significant efforts have been made to promote and boost new teaching methodologies such as self-learning or problem-solving oriented learning. We have also tried to optimize the use of resources for teaching; thus, we have

only one group of students for lectures in every subject and we have reduced the ratio of students/teacher to 15:1 in non-clinical subjects and 7:1 in clinical subjects. In addition, most of the subjects have been activated on the USC's Virtual Campus (*USC Virtual*) that acts as an Internet library where students can find teaching materials, course notes, pictures, videos, etc. All these changes have produced a considerable increase in teaching quality. Special emphasis has also been made to preserve animal welfare and to transmit the notion of respect and protection towards animals to the students.

The content of each subject will depend on the criteria of the professors responsible for it, but the distribution of hours and the content must be approved by the TEAC (Teaching Affairs Committee). The function of this committee is to propose the timetables for lectures, practical classes and exams for subsequent academic courses and to propose those changes in the curriculum that need to be submitted for the approval of the Faculty Board. This committee also assesses teaching quality and supervises, modifies and analyses all aspects related to the teaching activity in the Faculty. This Committee meets at least once every trimester.

We should also mention the Spanish legislation that can affect curricula and/or any modifications to them. The University Organic Law (LOU), was passed in 2001 (BOE 24/12/01), after the implementation of the 2000 curriculum in the Veterinary Faculty in Lugo; and was amended in April 2007 (BOE 13/4/07). The recently approved RD 1393/2007 provides for the management of official University Education in Spain; in that it deals with changes to the study programmes and their adaptation to the ESHE. Under the current Spanish laws, the process for the creation, modification and homologation of official curricula and degrees has to be initiated by an intra-establishment commission that elaborates a proposal for a change. That proposal will be sent to the Faculty Board for approval. Once approved, the proposal must be sent to an independent Agency for Quality Assurance and Accreditation. If the ANECA approves the change, the proposal is then submitted to the University Government Board. Once approved on a university level, the proposal is then submitted to the Coordination Council of Spanish Universities (CCSU) for further examination. If the CCSU approves the proposal, a positive memorandum is sent to the Spanish Ministry of Education who has the final decision.

4.1: CURRICULUM FOLLOWED BY ALL STUDENTS

TABLE 14. Curriculum Hours Taken by All Students in Core Subjects

	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	**Total**
First year	385	280	10	0	50	**725**
Second year	315	225	0	0	45	**585**
Third year	315	199	18	73	15	**620**
Fourth year	300	105	15	105	10	**535**
Fifth year	365	96+240[a]	22	102+180[a]	30	**1,035**
TOTAL	**1,680**	**1,145**	**65**	**460**	**150**	**3,500**

* Seminars (discussion of scientific papers, etc.). See note 1
[a] Obligatory extramural work (pre-professional fieldwork) in the VTH and in the breeding of food producing animals, which are both obligatory for all the students.

Note: 1) Because of the very nature of some activities, it is difficult to establish a clear cut between categories. Because of our literal interpretation of the guidelines of the present document, the activities have been classified as practical work or supervised work if students must produce a report or presentation of some kind. In certain instances, where there is a discussion activity (i.e. discussion of a scientific paper, solving cases, etc.) with active participation of the students but with no need to produce a report or a presentation, these hours have been listed under "other".

TABLE 15. Yearly Curriculum Studies

Year of the course: 1st

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Agronomy & Rural Economics	30	50	0	0	0	**80**
Anatomy & Embriology I	75	75	0	0	0	**150**
Animal & Plant Biology	45	25	0	0	10	**80**
Biochemistry	75	45	0	0	0	**120**
Epidemiology	25	10	0	0	0	**35**
Ethology, Animal Protection & Ethnology	45	30	5	0	0	**80**
Physics	30	15	0	0	15	**60**
Mathematics	30	15	5	0	10	**60**
Chemistry	30	15	0	0	15	**60**
TOTAL	**385**	**280**	**10**	**0**	**50**	**725**

* Seminars (discussion of scientific papers, etc.)

Year of the course: 2nd

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Anatomy & Embriology II	30	30	0	0	0	**60**
Cytology & Histology	60	60	0	0	0	**120**
Animal Physiology	60	30	0	0	30	**120**
Immunology	30	15	0	0	0	**45**
Microbiology	75	45	0	0	0	**120**
Parasitology	30	30	0	0	0	**60**
Genetics	30	15	0	0	15	**60**
TOTAL	**315**	**225**	**0**	**0**	**45**	**585**

* Seminars (discussion of scientific papers, etc.)

Year of the course: 3rd

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Pathological Anatomy	90	27	3	30	0	**150**
Pharmacology, Pharmacy & Therapeutics	60	22	15	8	15	**120**
Animal Nutrition	60	60	0	0	0	**120**
General Pathology	45	25	0	0	0	**70**
Propaedeutics	0	15	0	35	0	**50**
Food Technology	60	50	0	0	0	**110**
TOTAL	**315**	**199**	**18**	**73**	**15**	**620**

* Seminars (discussion of scientific papers, etc.)

Year of the course: 4th

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Animal Health & Breeding	45	35	0	0	0	**80**
Infectious Diseases	75	0	10	30	10	**125**
Parasitic Diseases	45	45	0	0	0	**90**
Clinical Medicine & Surgery	75	0	0	50	0	**125**
Radiology	15	0	0	20	0	**35**
Toxicology	45	25	5	5	0	**80**
TOTAL	**300**	**105**	**15**	**105**	**10**	**535**

* Seminars (discussion of scientific papers, etc.)

Year of the course: 5th

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Deontology, Legal Medicine & Veterinary Legislation	20	10	0	0	0	**30**
Food Hygiene, Inspection & Control	105	38	5	12[a]	0	**160**
Preventive Veterinary Medicine	30	2	3	10	0	**45**
Obstetrics & Reproduction	75	10	10	30	0	**125**
Medical & Nutrition Pathology	75	0	0	50	0	**125**
Animal Production & Veterinary Hygiene	60	36	4	0	0	**100**
Pre-professional fieldwork	0	240[b]	0	180[c]	30[d]	**450**
TOTAL	**365**	**336**	**22**	**282**	**30**	**1,035**

* Seminars (discussion of scientific papers, etc.)

[a] *Antemortem* and *postmortem* inspection

[b] Clinical practice in the VTH (100 hours) and on farm livestock (80 hours) as obligatory rotations for all the students enrolled in the subject *Obligatory extramural fieldwork* ("*Estancias*").

[c] O*bligatory extramural fieldwork* ("*Estancias*") (pre-professional fieldwork) in public or private institutions outside the Faculty that can be different depending on the election of the student (optional rotations); although we consider them to be practical fieldwork, a great majority of students (> 80 %) spend their extramural fieldwork in these optional rotations (160 hours) in clinical activities with small or large animals (see Figure 8 in 4.4).

[d] Report writing of the 6 rotations in the core subject *Obligatory extramural fieldwork*.

TABLE 16. Number of Curriculum Hours Taken by Every Student

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
A. Basic subjects						
Anatomy (includes Histology & Embryology)	165	165	0	0	0	330
Biochemistry and Molecular Biology	75	45	0	0	0	120
Biology (includes Cell Biology)	43	24	0	0	10	77
Biophysics	30	15	0	0	15	60
Biostatistics	30	15	5	0	10	60
Chemistry	30	15	0	0	15	60
Epidemiology	25	10	0	0	0	35
Genetics	30	15	0	0	15	60
Immunology	29	15	0	0	0	44
Microbiology	74	45	0	0	0	119
Parasitology (**)	**30**	**30**	**0**	**0**	**0**	**60**
Pathological Anatomy (Macroscopic & Microscopic) (**)	**90**	**27**	**1**	**30**	**0**	**148**
Pharmacy (1)	20	8	5	0	5	38
Pharmacology(1)	20	10	5	0	5	40
Physiology	60	30	0	0	30	120
Physiopathology (**)	**45**	**25**	**0**	**0**	**0**	**70**
Scientific and Technical Information & Documentation Methods(2)	12	16.5	7.5	0	0	36
Toxicology (includes Environmental Pollution)	37	16	0	5	0	58
TOTAL	**845**	**526.5**	**23.5**	**35**	**105**	**1,535**

* Seminars (discussion of scientific papers, etc.)

** Subject addressed as Clinical Science and not Basic Science in the EU Directive 36/2005.

(1) Pharmacy and Pharmacology are taught together within the subject called *Pharmacology, Pharmacy and Therapeutics*.

(2) Under "Scientific and Technical Information & Documentation Methods" we also included lectures and activities corresponding to several courses: *Biology, Immunology, Microbiology, Pathological anatomy, Pharmacology, Pharmacy and Therapeutics, Toxicology, Preventive Veterinary Medicine, Animal Production* & *Veterinary Hygiene, Deontology, Legal Medicine* & *Veterinary Legislation and Food Hygiene, Inspection* & *Control.* The number of hours listed in the table is an approximation.

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
B. Animal Production						
Agronomy[3]	15	25	0	0	0	40
Animal Behaviour (includes Behavioural Disorders) [4]	23	0	0	0	0	23
Animal Husbandry (includes Livestock Production Systems)[5]	90	64.5	0.5	0	0	155
Animal Nutrition & Feeding	60	60	0	0	0	120
Animal Protection & Welfare [4] [6]	12	2.5	0.5	0	0	15
Environmental Protection [7]	6	4	0	0	0	10
Preventive Veterinary Medicine (includes Health Monitoring Programmes) **(**)**	15	0	3	0	0	18
Reproduction (includes Artificial Breeding Methods) [8] **(**)**	36	10	10	0	0	56
Rural Economics[3]	15	25	0	0	0	40
TOTAL	**272**	**191**	**14**	**0**	**0**	**477**

* Seminars (discussion of scientific papers, etc.).

** Subject addressed as Clinical Science and not Basic Science in the EU Directive 36/2005.

[3] "Agronomy" and "Rural Economics" are taught together within the subject called *Agronomy* & *Rural Economics*. About 50% of the total hours of this subject correspond to "Agronomy" and 50% to "Rural Economics".

[4] Ethology (Animal Behaviour) and Animal Welfare are taught within the same subject *Ethology, Animal Protection* & *Ethnology*. Approximately, 30% of this subject (23 h) is devoted to Ethology, 10% to Animal Protection & Welfare, and 60 % to Ethnology.

[5] Course contents dealing with Animal Husbandry (including Livestock Production Systems) are split among several subjects, including *Ethnology, Animal Health* & *Breeding*, and *Animal Production* & *Veterinary Hygiene*.

[6] Course contents dealing with Animal Protection and Welfare are split among several subjects, including *Ethology, Animal Protection* & *Ethnology* and *Animal Production* & *Veterinary Hygiene*.

[7] Course contents dealing with Environmental Protection are split among several subjects, including *Animal Production* & *Veterinary Hygiene* and *Toxicology*.

[8] Reproduction (including Artificial breeding methods), Obstetric and Reproductive disorders are taught together within the subject called *Obstetrics* & *Reproduction*.

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
C. Clinical subjects						
Anaesthetics[9]	12	0	0	8	0	20
Clinical Examination, Diagnosis and Laboratory Diagnostic Methods [10]	0	15	0	35	0	50
Clinical Medicine[11]	195	45	10	80	10	340
Diagnostic Imaging	15	0	0	20	0	35
Obstetrics[8]	24	0	0	10	0	34
Reproductive Disorders[8]	15	0	0	20	0	35
State Veterinary Medicine, Zoonoses, Public Health & Forensic Medicine [12]	4	4	0	0	0	8
Surgery[9]	63	0	0	42	0	105
Therapeutics[1]	20	0	5	8	5	38
TOTAL	**348**	**64**	**15**	**223**	**15**	**665**

* Seminars (discussion of scientific papers, etc.).

[9] Anaesthetics and Surgery are taught together within the subject called *Clinical Medicine* & *Surgery*.

[10] The hours listed here (Clinical Examination, Diagnosis and Laboratory Diagnostic Methods) correspond to our subject called *Propaedeutics*.

[11] The hours listed here (Clinical Medicine) correspond to three different subjects *Medical* & *Nutrition Pathology*, *Infectious Diseases* and *Parasitic Diseases* which were not previously listed.

[12] Here, we have only included a part of Forensic medicine. Other contents corresponding to this item (i.e. Zoonoses and Public Health) are taught in several subjects (*Infectious diseases, Parasitic Diseases, Food Hygiene, Toxicology, and Legal Veterinary Medicine*) as specific parts of each one.

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
D. Food Hygiene						
Certification of Food Production Units [13]	5	15	0	0	0	20
Food Certification [13]	9	5	0	0	0	14
Food Hygiene & Food Quality (includes Legislation) [13]	32	10	1	0	0	43
Food Inspection, (particularly food of animal origin)[13]	40	8	0	12	0	60
Food Science & Technology	60	47	0	0	0	107
TOTAL	**146**	**85**	**1**	**12**	**0**	**244**

* Seminars (discussion of scientific papers, etc.)

[13] All contents dealing with the Certification of Food Production Units, Food Certification, Food Hygiene & Food Quality, Food Inspection, etc. are taught altogether within the subject called *Food Hygiene, Inspection and Control*. This subject also includes Slaughterhouse practice.

SUBJECT	HOURS OF IN-CLASS TRAINING					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
E. Professional knowledge						
Practice Management[14]	12	260.5[15]	7.5	186	30[16]	496
Professional Ethics[14]	12	2.5	1.5	1	0	17
Veterinary Certification & Report Writing[14]	6	10	1	0	0	47
Veterinary Legislation[14]	39	5.5	1.5	3	0	49
TOTAL	**69**	**278.5**	**11.5**	**190**	**30**	**579**

* Seminars (discussion of scientific papers, etc.)

[14] The hours listed here also include lectures and activities corresponding to several courses. The number of hours listed in the table is an approximation.

[15] Included Pre-professional fieldwork.

[16] Written report about the 6 rotations in the core subject *Obligatory extramural fieldwork* ("*Estancias*")

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 Table 13 of the "Factual Information" Section, students are required to take 400 hours of elective subjects, 105 hours of them during the first cycle (1st and 2nd year) and 295 hours during the second cycle (3rd, 4th and 5th years). In each cycle, the hours offered to the students are double the hours they have to study (210 and 605, respectively). Generally speaking, the number of elective subjects offered (81.5 credits) are sufficient to complete the obligatory 400 hours.

In Table 17 the elective subjects are divided in two groups according to the cycle in which their study is recommended. First cycle elective subjects are mainly related to basic veterinary subjects, and the second cycle ones are aimed at expanding knowledge and becoming specialised in applied areas; they also serve as a pre-professional introduction. Students can freely choose among the elective subjects offered in each cycle. The USC does not set limitations on the choice of elective subjects, nor has it established a limit on the number of students allowed to enrol in these subjects. However, in order to better take advantage of the contents offered in the electives, it is recommended that the student enrol in them only after having completed the core subjects upon which they are based. For example, students are recommended to complete the core subjects Anatomy I and II in order to enrol in the elective *Anatomy of Birds, Small Mammals & Other Species.*

TABLE 17. Courses Organised as Elective Subjects

Cycle I	HOURS IN COURSE					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Animal Genetics Engineering	45	15	0	0	0	60
Informatics Applied to Veterinary	15	45	0	0	0	60
Multivariate Analysis Techniques	21	15	9	0	0	45
Applied Zoology	30	10	5	0	0	45
TOTAL	**111**	**85**	**14**	**0**	**0**	**210**

Cycle II	HOURS IN COURSE					
	Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Aquaculture	45	35	0	0	0	80
Anatomy of Birds, Small Mammals & Other Species	30	15	0	0	0	45
Biochemistry of Organs & Tissues	20	15	10	0	0	45
Reproductive Biotechnology	30	15	0	0	0	45
Clinical Veterinary Ultrasound Scan	30	0	0	30	0	60
Medicine & Techniques for Monitoring High-producing Dairy Cows	30	0	0	15	0	45
Identification & Control of Critical Points in the Food Industry	30	5	10	0	0	45
Ophthalmology	30	0	0	15	0	45
Production & Maintenance of Forages	24	30	6	0	0	60
Sampling & Clinical Analysis	30	0	3	12	0	45
Traumatology & Veterinary Orthopaedics	30	0	0	15	0	45
Zoonoses & Public Health	30	15	0	0	0	45
Practices at the Lugo Society for Animal Charity (1)	0	0	0	120	0	120
TOTAL	**359**	**130**	**29**	**207**	**0**	**725**

(1) Equivalence of credits (30 hours = 1 credit).

4.3: OPTIONAL SUBJECTS

Optional subjects are of a varied nature and their aim is to complete students training in those areas of their particular interest. As stated above in Table 13 of the "Factual Information" Section, students have to attend 400 hours of optional subjects. This represents 10% of the total syllabus credits; 240 hours may be taken during the first cycle and 160 during the second cycle.

For their optional subject credits, students can choose any subject offered by the USC; in addition, credits can be obtained for participating in a variety of activities such as conferences, courses, etc. The optional subjects listed below in Table 18 correspond to "free choice" courses offered by the USC on the Lugo Campus which are related more or less directly to the field of Veterinary Medicine.

TABLE 18. Optional Subjects in the Veterinary Curriculum

SUBJECT	YEAR(S) OFFERED	HOURS OF IN-CLASS TRAINING					
		Lectures	Practical work	Supervised work	Clinical work	Other*	Total
Toxic & Medicinal Plants and Fungi for Animals(1)	All	30	15	0	0	0	45
Organic Farming(2)	All	45	30	0	0	0	75
Construction of Housing Livestock(2)	All	45	30	0	0	0	75
Meat Production(2)	All	45	30	0	0	0	75
Milk Production(2)	All	45	30	0	0	0	75
Zootechny(3)	All	45	30	0	0	0	75
Expanding Zootechny(3)	All	45	30	0	0	0	75
Quality Control: Agrofood(3)	All	30	15	0	0	0	60
Food Microbiology & Hygiene(4)	All	60	20	0	0	0	80
Science & Technology in Fishery Products(4)	All	45	15	0	0	0	60
Science & Technology of Meat & Meat Products I(4)	All	45	15	0	0	0	60
Science & Technology of Meat & Meat Products II(4)	All	45	15	0	0	0	60
Science & Technology of Milk & Dairy Products I(4)	All	45	15	0	0	0	60
Science & Technology of Milk & Dairy Products II(4)	All	45	15	0	0	0	60

(1) Offered by the Veterinary Faculty.
(2) Offered by the Higher Polytechnic Agricultural School (EPS): Farming and Livestock Breeding degree.
(3) Offered by the Higher Polytechnic Agricultural School (EPS).
(4) Offered by the Food Science & Technology Faculty.

As shown before, although elective subjects (Table 17) generally have a clear orientation towards the action field of Clinics, the student can use their selection of optional subjects (Table 18) in the action fields of Food Hygiene and Animal production.

4.4: OBLIGATORY EXTRAMURAL FIELDWORK

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

The obligatory extramural fieldwork is integrated into the curriculum of the course as a core subject called *Course for Placement Orientation* ("*Estancias*"). The aim of this extramural fieldwork is to integrate future veterinarians into "real" field practice in several different areas of the veterinary profession.

The organization of this course is developed as *per* the regulations originally adopted by the Faculty Board on March 4th, 2005, and which were subsequently amended by the Faculty Board in December 20th, 2007.

In our Faculty, the students can enrol in this core subject once they have successfully completed 100% of the required core subjects (for 1st, 2nd & 3rd year). Since this subject is organised in full-time pre-professional practices that cannot develop simultaneously with the lectures or practical classes in their ordinary coursework, it means that the students have to do it during the summer after their 4th or 5th year or during the 6th year onward if they have to repeat some subjects. This extramural fieldwork has a duration of 15 credits (450 hours, 1 credit=30 hours), organised over 10 weeks and divided into 6 rotations according to Table 19.

TABLE 19. Obligatory Extramural Fieldwork That Students Must Undertake

NATURE OF WORK	MINIMUM PERIOD
Clinical Veterinary Services[a]	100 hours (2 weeks)
Cattle Breeding[b]	40 hours (1 week)
Other Livestock Breeding[b][c]	40 hours (1 week)
Public Health Offices[b]	40 hours (1 week)
Slaughterhouses or Food Processing Industries[b]	40 hours (1 week)
Optional rotation[b]: Large Animal Clinics, Small Animal Clinics, Cattle Breeding, Other Livestock Breeding, Public Health Offices, Slaughterhouses or Food Processing Industries	160 hours (4 weeks)
Preparation of Reports (one for each rotation)	30 hours

[a] In the VTH-*Rof Codina*, night & weekend emergencies included.
[b] In Centres/Entities other than the Faculty.
[c] Includes Wildlife Rehabilitation Centres & Zoos

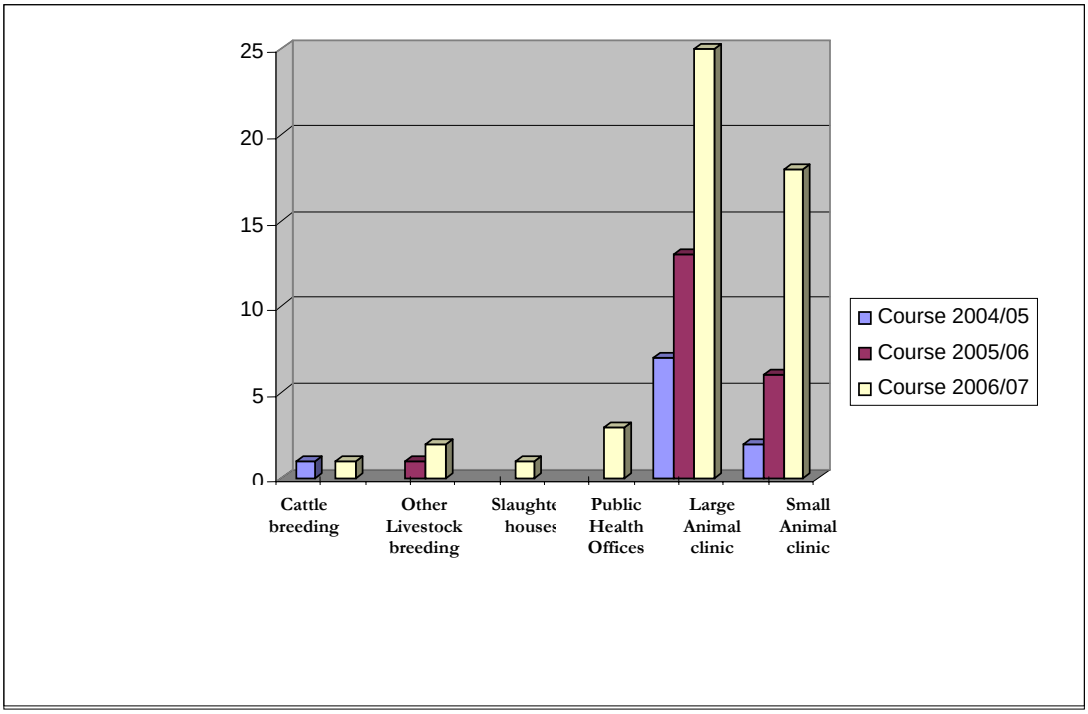
Each student has an internal tutor or *teaching tutor* who is always a professor from the Veterinary Faculty and an external tutor or *professional tutor* who is the Veterinarian responsible for his/her training in the centre where the stay takes place.

For each rotation, the Faculty offers every student a panel of centres and professional tutors, who have previously signed a collaboration agreement. The student can choose

in order of preference according to the number of credits approved. Students also have the possibility of making a proposal for carrying out this extramural fieldwork in other institutions not listed by the Faculty. In such a case, and after an inquiry on the quality of the proposed centre, the Faculty may give their approval to the proposal and sign the corresponding agreement. The *teaching tutor* is assigned directly by the Faculty for each rotation and student, depending on the specialty of the teacher who has voluntarily accepted to act as tutor.

In the optional rotation (4 weeks), the students show a strong preference for Clinical work, be it large or small animals (Figure 8)

FIGURE 8. Preferences of Students in the Optional Rotation

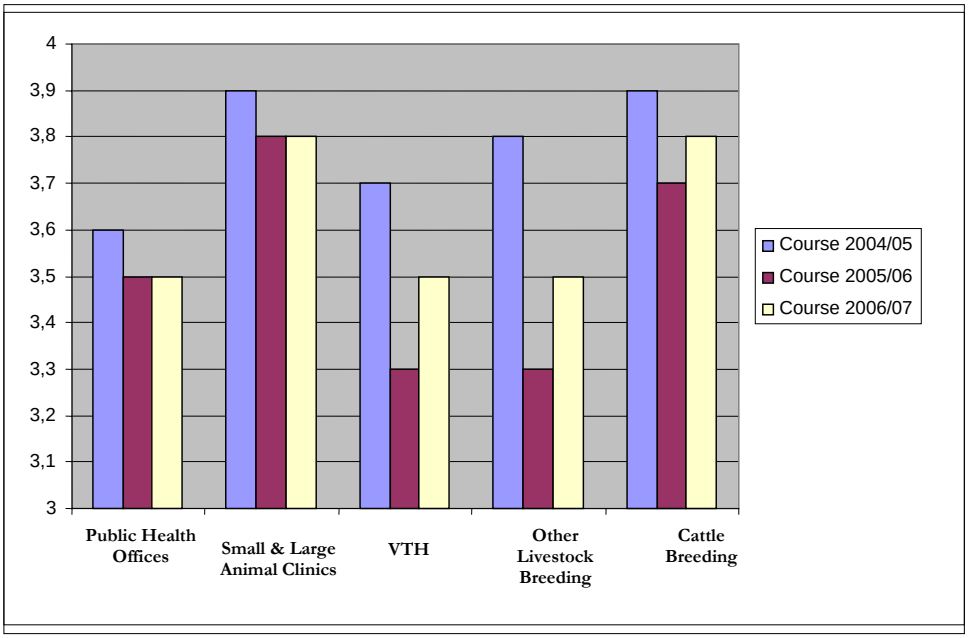


The evaluation of the obligatory extramural fieldwork is done by means of a double mechanism: the *professional tutor* elaborates a report qualifying the performance of the student (timeliness, skills and attitudes). The *teaching tutor* evaluates the report prepared by the student in each rotation. In the event of a negative report from any of the tutors, the student does not pass this subject and must repeat this training phase to obtain the degree. The final qualification obtained is decided by the Permanent Committee taking into account the 12 different marks obtained by every student (2 marks for each of the 6 rotations).

In addition to the reports about each rotation, students must submit a survey in which they express their satisfaction on a number of items such as the availability of the professional and teaching tutors, etc. In a numerical value from 1 (poor) to 4 (very

good), the degree of satisfaction of the students in the past 3 years exceeds 3.5 (Figure 9).

FIGURE 9. Students' Satisfaction With Extramural Rotations



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 refer to elective subjects since they are an important element in our syllabus; our students are required to complete 400 hours in elective subjects and thus, to a certain extent, they can also be considered compulsory.

4.5.1. Core Subject Ratios

$$\frac{\text{Theoretical training}}{\text{Practical and clinical training}^{(a)}} = \frac{1{,}680}{1{,}820} = \frac{\mathbf{1}}{\mathbf{1.08}}.$$

(a) Pre-professional practical fieldwork performed by all students is included

As shown in Table 15 (note b of the 5th course) and Figure 8 in point 4.4, although we consider them as practical work, a great majority of students (>80%) spend their extramural work in the optional rotations (160 hours) of *Obligatory extramural fieldwork* ("*Estancias*") in clinical activities with small or large animals.

Therefore, the ratio clinical training/theoretical and practical training has been estimated for the 80% of students who choose their optional rotation (160 hours) in clinical activities (RC-80) and for the 20% of students who choose their optional rotation in non-clinical activities (RC-20).

RC-80

$$\frac{\text{Clinical training}^{(b)}}{\text{Theoretical and Practical training}^{(c)}} = \frac{620}{2{,}880} = \frac{\mathbf{1}}{\mathbf{4.65}}.$$

(b) Pre-professional clinical practices in the VTH and in farms livestock and optional rotation in clinical activities are included
(c) Extramural non-clinical pre-professional practices are included

RC-20

$$\frac{\text{Clinical training}^{(b)}}{\text{Theoretical and Practical training}^{(c)}} = \frac{460}{3{,}040} = \frac{\mathbf{1}}{\mathbf{6.61}}.$$

(b) Pre-professional obligatory clinical practices in the VTH and in farms livestock are included
(c) Pre-professional obligatory non-clinical practices are included

4.5.2. Elective subject ratios

$$\frac{\text{Theoretical training}}{\text{Practical and clinical training}} = \frac{470}{465} = \frac{\mathbf{1}}{\mathbf{0.99}}.$$

$$\frac{\text{Clinical training}}{\text{Theoretical and Practical training}} = \frac{207}{728} = \frac{\mathbf{1}}{\mathbf{3.52}}.$$

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

A. BASIC SUBJECTS	CONTENTS
Anatomy (includes Histology and Embryology)	Embryonic development in the species of veterinary interest. Embryo manipulation. Congenital abnormalities. Locomotive system. Nervous system and sensory organs. Splanchnology, cardiovascular system and skin and annexes. Topographic anatomy and compared anatomy of the Domestic ungulates. Study of the different regions of the body of ungulates (head, neck, back, chest member, a pelvic member, chest region, abdomen and pelvis), blood vessels, nerves, muscles, areas projection bodies. Structural and ultrastructural study of the cells, tissues and organs of the different domestic species.
Biochemistry and Molecular Biology	Molecular basis of life and production processes. Changes in the molecular disease. Applications in the diagnosis, therapy and animal production.
Biology (includes Cell Biology)	The diversity of animal and plant kingdoms. Morphology, Systematics and Associations of animals and plants of veterinary interest.
Biophysics	Physical bases of biological and industrial processes applicable to the products of veterinarian interest. Applications of physics for veterinary science.
Biostatistics	Descriptive analysis of the data. Studying various methods to estimate the parameters of the population. Applications of calculating probabilities for the Veterinary field.
Chemistry	Physic-chemical basis of biological processes. Basis of organic chemical-biological processes. Chemistry and the environment.
Epidemiology	Descriptive and prospective analysis of the phenomena that affect the population, particularly the risk factors on public health and ecosystems.
Genetics	Fundamentals on genetic material transmission. The Mendelian analysis of heredity. The sex-linked inheritance. Ligament and recombination. Numerical and structural chromosomal variations. DNA technology and its applications. Genomic and proteomics.
Immunology	Study of the resistance of the non-specific (innate) and specific immunity (acquired) host against infections and the development of tumoral cells, alterations associated with the immune system (allergy, self-immunity, immune suppression, transfusions reactions and rejection to transplanted tissues), and its immunological applications (vaccines, serologic therapy and immunological methods)

A. BASIC SUBJECTS	CONTENTS
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.
Pathological Anatomy (Macroscopic & Microscopic) (*)	Cellular pathology. Dystrophy. Circulatory disturbances. Inflammation and tissue repair. Tumour growth and oncology. Tumour epidemiology and clinic. Identification, description, interpretation, and diagnosis of macroscopic and histologic lesions of the many systems and apparatus of domestic animals during the course of diseases.
Pharmacy and pharmacology	Pharmacokinetics. Pharmacodynamics. Description of most important pharmacological groups. Study of the pharmaceutical forms and pharmacokinetic applications. Mechanisms of action.
Physiology	Complete description of organs and systems functionality. Medicine and Animal Production applied Physiology.
Physiopathology (*)	Nosology. Physiopathology: Digestive system, Respiratory apparatus, Circulatory system, genital-urinary apparatus, nervous system, endocrine system. Physiopathology of nutrition and metabolism. Clinical bio-pathology and haematology.
Scientific and technical information and documentation methods	These contents are included as parts of other subjects
Toxicology (incl. environmental pollution)	Fundamentals of toxicology, toxic-kinetics, mechanisms of action, diagnosis and treatment of intoxications

* Subject addressed as Clinical Science and not Basic Science in the EU Directive 36/2005.

B. ANIMAL PRODUCTION	CONTENTS
Agronomy	Soil-plant-animal relations. Plants used for livestock and factors that affect their quality and performance. Studying prairies for animal use.
Animal Behaviour (includes Behavioural Disorders)	Animal behaviour, domestication and stereotypes and other abnormal behaviours.
Animal Husbandry (includes Livestock Production Systems)	Study on the external morphology and characteristics ethnologic and productive of livestock. Basic concepts in animal production. Technical basis for: swine production, poultry production, bovine production, sheep and goat production, rabbit production and equine production. Husbandry and management of domestic species. Milk production. Egg production. Meat production. Carcass evaluation and classification. Performances. Genetic applications improvement programmes. Elimination of deadly factors and sub-lethal for resistance to disease.
Animal Nutrition & Feeding	Nutritional needs in domestic species. Digestion and metabolism. Feeding for domestic specie. Rationing and feedstuff Formulation.
Animal Protection & Welfare	These contents are included as parts of subjects of *Ethology, Animal Protection and Ethnology* and *Animal Production* & *Veterinary Hygiene*: Basic concepts in welfare. Systems to evaluate well-being and discomfort/pain. Welfare in livestock production. Welfare during transport and slaughter. Legal aspects of welfare.
Environmental Protection	These contents are included as parts of subjects of *Animal Production* & *Veterinary Hygiene* and *Toxicology*: Impact of animal production systems on the environment. Study of synthetic agents which can cause acute or chronic intoxications. Eco-toxicology.
Preventive Veterinary Medicine (includes Health Monitoring Programmes) (*)	Preventive medicine programmes. How to make a farm profitable. Basis on prevention, control and fighting illness. Bio-security.
Reproduction (includes Artificial Breeding Methods) (*)	Physiological bases of the reproductive cycle of domestic species. Analysis of reproductive efficiency. Basic reproductive technologies: ovarian cycle and Oestrus synchronization, artificial insemination, embryo transfer and in vitro fertilization.
Rural Economics	Introduction to the market economy. Commercialization of agricultural products. Macro-economy and economic policy.

* Subject addressed as Clinical Science and not Basic Science in the EU Directive 36/2005.

C. CLINICAL SUBJECTS	CONTENTS
Anaesthetics	Pre-anaesthetic evaluation and pre-medication: sedation, induction techniques. Intravenous maintenance. Gas anaesthesia. Basic monitoring: invasive and non-invasive. Anaesthetic complications. Cardiac arrest and cardio respiratory resuscitation techniques.
Clinical Examination and Diagnosis and Laboratory	Direct and complementary clinical examination methods and clinical interpretation of their results.
Clinical Medicine	Aetiology, pathogenesis, symptoms, diagnostic methods and procedures, prognostic, therapeutic and/or prophylactic measures for diseases of the respiratory, cardiovascular, digestive, urinary, endocrine and neurological systems. Blood and skin diseases. Infectious and parasitic diseases of domestic animals.
Diagnostic Imaging	Nature of Radiology. X-Ray production, properties and ionization radiations action on live animals. Diagnostic and therapy applications. Risk for use ionization radiations and radioprotection.
Obstetrics	Delivery disorders of pregnancy, partum, and post-partum. Complications and resolution procedures.
Reproductive Disorders	Sub-fertility, infertility and sterility causes and resolution procedures. Pathologic anoestrus. Endometrial, cervical, vaginal and vulva disorders. Embryonic and foetal death.
State Veterinary Medicine, Zoonoses, Public Health and Forensic Medicine	These contents are included as parts of other subjects (*Infectious and Parasitic diseases, Food Hygiene, Toxicology, Legal Veterinary*): Legal and forensic medicine. Technical basis to fight against diseases. Animal health code. Risk analysis.
Surgery	Surgical techniques, including surgical restitution and experimental surgery
Therapeutics	Pharmacological effects and their implications therapeutic and toxic. Systematic pharmacological therapy.

D. FOOD HYGIENE	CONTENTS
Certification of Food Production Units Food certification Food Hygiene and Food Quality (includes Legislation) Food Inspection, (particularly food of animal origin)	Food and food quality. Food contaminants (biotic and abiotic). Food-borne diseases. Additives. Hygienic aspects of food production, preservation and distribution. Hazard Analysis and Critical Control Points. Hygiene and Bromatology of milk and milk products, meat and meat products, eggs, fish and seafood. Food inspection and certification. Legal aspects of food quality. Analytical techniques. Slaughterhouse and food establishment inspection. International animal and animal products trade. Food Toxicology. Toxic residues in foodstuffs of animal origin.
Food Science & Technology	Components of food. Food spoilage. Basic processes and operations in food technology. Preservation of foods. Cleaning and disinfection in food industries. Food technology: Milk, meat, eggs, fish and seafood, honey. Quality control of food processing.

E. PROFESSIONAL KNOWLEDGE	CONTENTS
Practice Management	These contents are included as parts of other subjects and obligatory extramural work.
Professional Ethics	These contents are included as parts of other subjects. Ethical veterinary code. Deontological code. Rights and obligations for professional veterinary practitioners. Responsibilities, organisation of veterinary protectionist of environment, sustainable development and animal welfare.
Veterinary Certification & Report Writing	These contents are included as parts of other subjects.
Veterinary Legislation	Town, Regional, National and EU legislation affecting the veterinary practice: Private practice, reportable diseases, management of livestock, welfare and animal protection, epidemics and disease control, food industries. Legal aspects of veterinary certification.

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

Attendance to all academic activities related to courses is compulsory; however, no formal attendance is taken.

The professor's signature, on a form made especially for this purpose, and the listing of approximate number students present is required each week to verify students' attendance to theoretical lectures. By decision of the professor, in some subjects a list for students to sign is passed at random throughout the year. In other cases, certain basic quizzes and/or tests are done which form part of the continuous evaluation mark given to each student.

Verification of attendance for practical activities (including practical fieldwork, clinical work, etc.) is usually done by taking attendance orally, having the students sign the attendance form, or by contrasting the names of those students who turn in the reports required throughout such practices.

In most cases, more than one unjustified absence to practices means that the student will not pass the subject.

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

Clinical rotation in the VTH is performed by all 2nd cycle students (4th and 5th year) enrolled in the core subjects *Surgery* (2 weeks, 5 hours/day from Monday to Friday), *Medical Pathology* (1 week in large animals and 2 weeks in small animals, 5 hours/day from Monday to Friday) and *Diagnostic Imaging* (1 week, 5 hours/day from Monday to Friday). For these core subjects the group size is 4-7 students *per* group. In addition, students enrolled in the core subject *Obligatory extramural fieldwork* spend two weeks (100 hours of training) in the VTH, including night duties and one weekend emergency service; for this core subject the group size is one student *per* VTH tutor.

4.7.1. MEDICAL PATHOLOGY:

4.7.1.1. 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 and complementary tests needed for the different diagnoses. After getting a Diagnosis (if possible) they design and apply the therapeutic plan, but always under the supervision of a clinician.

4.7.1.2. Large Animal Internal Medicine Rotations

Students deal mostly with hospitalised patients (horses and cattle); they participate with the clinician in rounds and collaborate in the patient's examination and management (including performance of diagnostic tests, treatment administration, etc).

4.7.2. SURGERY:

4.7.2.1. 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 on and administer the treatment.

4.7.2.2. Small and Large Animals Operating Rooms:

Students participate in the preparation of the surgery preparation (surgical material, room and patient). They assist the surgeon in complex surgeries, and they perform easier ones by themselves (ovary-hysterectomy, 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 therapeutic measures taken, by administering treatments and taking an active part in daily procedures, such as wound cleaning and dressing.

4.7.2.3. Small and Large Animal Anaesthesia:

Under the academic staff's supervision, students evaluate the pre-anaesthetic 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), as well as the filling in of the anaesthetic control sheets.

4.7.3. EQUINE REPRODUCTION (*Parada de Sementales*; Stallion Stud Service):

Students take part in all procedures related to mares' mating. They learn the different ways of achieving successful equine reproduction (natural mount, assisted reproduction, pregnancy diagnosis follow-up, births and foal neonatology). This activity lasts from April to June every academic year.

4.7.4. DIAGNOSTIC IMAGING:

During this rotation students participate in the Diagnostic Imaging Service. They collaborate in performing radiographic and ultrasound studies, and discuss and interpret results with the clinician. They are trained in different diagnostic imaging techniques such us radiology, ultrasound scan and computerised tomography scan.

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

When students enrol in clinical rotations at the VTH, they should have already passed the subjects *Physiopathology*; *Propaedeutics*; *Pharmacology, Pharmacy & Therapeutics*; and *Pathological Anatomy* (3rd year subjects). However, students may not have completed all of these subjects prior to their enrolment.

In the aforementioned subjects, students learn methods of holding patients, clinical examination procedures, how to administer drugs, how to identify and describe tissue and organic lesions associated to different diseases, how to carry out and interpret several laboratory diagnostic tests and complementary diagnostic tools (clinic bio-pathology, electrocardiography, etc).

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

All students performing rotations in the subjects *Surgery* or *Medical Pathology* participate in the Emergency Service and hospitalisation at the VTH. Each student must remain on duty for one full day and attend to all the tasks that arise both in the hospitalised

animals and in the Emergency Service. In this time, the students undertake simple tasks like exploring the patients, participate in the decision-making process based on any changes that occur in the state of the patient, receive training in the placement of catheters, and administer drugs when any surgery is performed. The entire time the students are in the VTH, they are under the supervision of the personnel with teaching and/or clinical duties.

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 16, 17 or 18.

In the core subject *Infectious Diseases*, practice in clinical fieldwork on infectious preventive medicine is carried out on dairy farms; two visits a week are made. During these practical sessions, students learn how to evaluate and control the existence of important infectious diseases like IBR, BVD, Johne´s disease, bovine mastitis, Neosporosis, neonatal diarrhoea and Bovine Respiratory Syndrome. Students perform blood sampling, ear biopsy, trans-tracheal aspiration, milk sampling and they analyse the results from serology. On sheep farms, students learn how to evaluate and control Maedi-Visna. In this subject students also evaluate the farm's bio-security measures and the risk factors for the possible emergence of diseases. They also look into therapeutic approaches and prevention/control programmes at a farm level in cattle, sheep, rabbit and fish farms, horse residences, and kennels.

In the core subject *Preventive Medicine and Sanitary Policy* students visit cattle and sheep farms and horse residences where they perform practical sessions on the prevention and control of infectious and/or parasitic diseases. An official veterinary inspection is also simulated.

Clinical practice at the mobile clinic is compulsory for all students enrolled in the core subject *Medical & Nutrition Pathology* and thus, has been included in *Clinical Medicine* in Table 16. In this subject every student spends 20 hours in the mobile clinic, mainly in livestock medicine. In these practical sessions, students actively participate in all clinical activities: physical examination, sampling, treatment administration, etc.

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 laboratory practices on the Faculty premises and practical activities in external food industries and slaughterhouses:

- Cattle and poultry slaughterhouses, cutting rooms and food processing meat products.
- Milk and dairy products factories.
- Fish and seafood warehouses.

The cattle slaughterhouse is about 10 km away from the Faculty. In groups of 20 students and 2 teachers (or 10 students *per* teacher), students visit this slaughterhouse for three days. Visits to the slaughterhouse are done with the participation of an official Veterinary Inspector from the slaughterhouse:

- Day 1 (4 hours, depending on slaughter volume): students learn the reception and classification of animals, *ante mortem* inspection, stunning, slaughter process and *post mortem* inspection. At all times during the visit, students attend to animal welfare and hygiene legislation in order to ensure that the meat is safe and that the resulting products are of the highest quality. They visit all the sections of the slaughterhouse and test the slaughterhouse itself from the point of view of hygiene (closed circuits, size and distribution, etc.).
- Day 2 (4 hours): Verification of slaughter hygiene and cleaning and disinfection of equipment and surfaces of the slaughterhouse and cutting room. The student takes the material for sampling what was previously prepared in the laboratory practise at the Faculty and performs carcass samplings.
- Day 3 (4 hours): *post mortem* inspection, traceability, inspection of carcasses and meat products, offal inspection.

The poultry slaughterhouse is about 100 km away from the Faculty. Species slaughtered are broilers, turkeys and ducks. During the visits (5-6 hours) 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.

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 existing veterinary curriculum at the Faculty distributes 39% of the contents in basic subjects, 14% in Animal Production subjects, 38% in Clinical subjects and 9% in Food Hygiene and Food Technology. This syllabus provides the students with basic general training which is flexible and balanced and produces graduates who are skilled in many areas. This versatility means that they can rapidly enter into the labour market as they are able to adapt to the different professional profiles which Society currently demands (Veterinary Medicine, Animal Production & Animal Health, and Food Science & Technology). Notwithstanding, the wide scope of the veterinary profession, and the fact that, by law, the veterinary curriculum in Spain is a five-year Degree programme produces an undesirable constriction in the development of the curriculum. Moreover, the rate at which knowledge is advancing in all these areas and the growing need for specialisation makes continuing lifelong education essential for all students, even those holding Postgraduate Degrees.

Assuming that Veterinary Professionals must currently be prepared to deal with more areas than just the classical clinical one, our Syllabus is designed to combine the acquisition of basic knowledge in all the fields of Veterinary Science (through the core subjects) with more advanced training in one given field (through electives and optional subjects). Since we ensure that an adequate level in essential veterinary disciplines are taught in the core subjects, our students can then design their own study programme (Minor) by choosing certain electives in order to develop a more profound understanding in their own areas of interest.

In the recent years, many changes have occurred. At an international level, food crises such as BSE, dioxins, and others, as well as the emergence or re-emergence of animal pathogens (classical Swine Fever, Foot & Mouth Disease, Bluetongue, etc.) and Zoonoses (West Nile Virus, etc.) indicate that more emphasis should be put on food safety for the whole food chain, public health issues and epidemiology. In addition, the small animal and exotic pet sector is becoming increasingly important and this must be reflected in the curriculum. Moreover, the level of awareness that the general public has about environmental issues and animal welfare suggest that concepts such as sustainable livestock production, waste management and welfare in animal production must obviously be promoted.

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 and Hunting Fauna, Natural Reserves and Animal Parks, Business Management, Research, Diagnostic Laboratories, and such. These fields have not always been clearly included in the profile of the Veterinarian and will have to be reflected in the curriculum.

Evidently, all these objectives cannot be met without a substantial reorganisation of the curriculum. Future developments will be centred on the implementation of the Bologna Declaration. This process of European convergence will most probably lead to major changes in the structure of the curriculum as well. The most significant improvements that can be made at this time are a decrease in the number of in-class hours and an increase of self-learning, supervised work and practical/clinical activities.

The implementation of the Bologna Declaration will also help to alleviate a severe problem that affects student performance. With the current curriculum, students are supposed to be present 4,300 h in five years, some 860 h/year. With this figure in mind, if students dedicate a similar number of hours of work to preparing the exams, presentations, etc., the total work load for a year is, at least, 1,720 h and, probably, more. The intensity of this workload must be decreased. This can be done by further promoting self-learning and autonomous work and also by reducing the number of theoretical lectures.

In this context, it is difficult to choose a satisfactory model which allows for the acquisition of both basic and specific professional knowledge that is structured and oriented to facilitating the student's integration into the labour market. In February of 2005, the Spanish Agency for Quality Assurance and Accreditation (ANECA)) elaborated the so-called "*Libro Blanco"* for the Veterinary Profession with the aim of providing studies and potential practical models for the future design of a Veterinary Degree adapted to the ESHE. All eleven Spanish Universities (nine public and two private ones) 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 in the design of an undergraduate course model: analyses of corresponding or related studies, studies of employment opportunities, professional profiles and competences, etc.

The essential recommendation of this project is to establish a five-and-one-half-year University Degree comprised of 300 ECTS credits + 30 additional ECTS credits for a practical fieldwork period.

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 from the perspective of the workload that it implies for the student. On the one hand, this focus will help to improve the

understanding that students acquire, but on another its practical application will make them better prepared for the professional market.

Royal Decree 1393/2007 has recently been passed in Spain; it outlines the management of official University Education in Spain. This Royal Decree adopts a series of measures, compatible with the ESHE, that provide for a more flexible organization of University Education, promote diversification in curricula, and allow universities to use their own ability to innovate their strengths and opportunities in order to respond to the demands of Society in an open and constantly changing world. The new organization of University Education not only responds to a structural change, but also fosters change in teaching methodologies focusing on the process of student learning in context and on making them aware of the need for their active participation in lifelong learning. The acquisition of skills on the part of students should be at the heart of any curriculum leading to the obtainment of a Degree; however, it should be focused on expanding—not excluding—the traditional approach based on content and teaching hours. But this Royal Decree limits the Veterinary degree to 300 ECTS and five years in duration, while the Conference of Deans of the Veterinary Faculties in Spain maintains its request for 330 credits and 5.5 years.

Along other lines, today, the excessive number of students enrolled has a negative effect on teaching, especially as far as practical sessions are concerned. At times the number of students per group is too high to ensure the optimum quality of the sessions. In addition, the students' heavy workload in the subjects in the final years of the degree and they also have to carry out their obligatory extramural fieldwork. This means that the students do not have enough time to be able to carry out all the practical work and this can cause problems of coordination between the different subjects.

Our curriculum is backed up by extensive extramural practical fieldwork (450 hours); it is the most complete and longest programme of its kind in all the Veterinary Faculties in Spain. In our opinion, it is quite positive since it introduces our students into the reality of the Veterinary Profession. Our Faculty has gone to great lengths to ensure an adequate structure for this extramural practical period, which provides both professional and teaching tutors responsible for the students' 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, in the case of the core subjects the theoretical training/practical and clinical training ratio falls within the satisfactory range. But, the clinical training/theoretical and practical training ratio falls in the unsatisfactory range, mainly for 20% of students who choose their optional rotation in non-clinical activities

(RC-20). As regards the elective subjects, both ratios are satisfactory or almost satisfactory. We suggest the following actions to improve these ratios:

1. A decrease in the number of theoretical lectures by transforming some of them into practical training (self-learning or supervised work activities in small groups). 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. The future syllabus, which will be designed in 2008, should reduce the number of theoretical hours and increase those for self-learning and autonomous work.

2. A positive improvement would be to reduce the number of students per group in the practical sessions, but this would only be possible with increased numbers of teachers and support staff or a reduction in the number of students enrolled in the first year.

3. As observed in 4.5, the ratio for clinical activities must be improved. We suggest decreasing the number of non-clinical work in clinical subjects.

4. More clinical practice in Animal Production subjects is necessary. Although the Faculty maintains agreements with industries and farms to carry out practical fieldwork, their bio-security measures increasingly limit our students' access to them. Having a farm of our own would allow us to increase the number of practical teaching hours in these areas.

5. Students may complete their clinical training with the selection of elective subjects (Table 17) usually orientated towards the Clinic, and the Food Hygiene and Animal Production training with the selection of optional subjects (Table 18).

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

5.1.1. Teaching Coordination

Teaching coordination is done by the Teaching Affairs Committee and the Vice-Dean for Teaching Affairs. According to Veterinary Faculty Regulations, the following staff members form part of the Teaching Affairs Committee (TEAC) :
a) The Dean or the Vice-Dean for Teaching Affairs.
b) Six teachers appointed by the Faculty Council representing the permanent Academic Staff.
c) Three representatives of hired Academic and Research Staff and Research Scholars.
d) Six representatives of Undergraduate students.
e) One representative of Support Staff.

This Committee not only proposes the timetables for lectures, practical classes and exams for subsequent academic courses, it also proposes those changes in the curriculum that need to be submitted for the approval of the Faculty Board. This committee also assesses teaching quality and supervises, modifies and analyses all aspects related to the teaching activity in the Faculty. The Committee meets at least once every trimester. It is the Vice-Dean for Teaching Affairs who is responsible for carrying out the decisions of the TEAC. His/her tasks also include regular meetings with student representatives in order to give timely answers to any problems encountered during the academic year. He/she is also responsible for organising the teaching activity for each semester. In addition, there is a specific coordinator for each year of study who assists the Vice-Dean for Teaching Affairs in his/her tasks; thus,

every year the syllabus and teaching programme of each subject (theoretical and practical classes) are sent to the Vice-Dean by the coordinators with any modifications and/or suggestions with respect to the preceding year. 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, during Spring term, the Vice-Dean draws up a draft with the complete teaching programme and proceeds to hold meetings with all the coordinators of the subjects in the different years in order to discuss and approve the entire teaching plan for the next academic year (teaching calendar, timetable of theoretical and practical classes, exam schedule etc.). This plan has to be ratified by the Faculty Board. The Vice-Dean for Teaching Affairs has to be informed of any proposed modification or change in the syllabus or programming of the various subjects. The TEAC is also in charge of drawing up the timetables for theoretical classes, classroom distribution, and examination dates. The schedule is designed to spread the final exams for the subjects of each year as far apart as possible over the examination period, and to ensure that the examinations of subjects in consecutive years are not held on the same day.

The Vice-dean for Teaching Affairs also designs the teaching policies to be proposed to the TEAC, acts as a coordinator with the Department Heads and implements university policies in the area of teaching. He/she is the figure responsible for teaching policies and is held accountable for all actions in this area before the Dean, the Faculty Board and the Vice-Rector for Academic Affairs.

The Departments and the TEAC are in charge of the coordination of the programmes for different subjects so as to avoid undesirable repetitions and/or gaps during the five-year curriculum. Normally, every subject is taught by a different teacher. Furthermore, every subject has a coordinator in charge of the organisation of the programme, the teaching methodology and examination methods.

Practices in the VTH are coordinated between the Veterinary Director and the Heads of the Services who seek to maximise the use of the Hospital and to fulfil the requirements of the curriculum.

5.1.2. Pedagogic Approach of the Institution

The pedagogic policy of the Faculty and the University is to implement and impulse learning-oriented student-centred approaches as well as to apply and develop some contents of the Bologna Declaration (stimulating self learning, problem solving, team working etc.).

The library services have introduced changes which have allowed for improvement in teaching-learning methods (see Chapter 8). The library organises guided visits for students so that they can come 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 at http://busc.usc.es/ .

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 *USC-Virtual Campus* (*USC Virtual,* http://www.usc.es/en/usc_virtual.jsp). They provide a virtual library of resources where students can find notes, lectures, multimedia materials and web- links to help them developing autonomous work. In the lectures of most of the subjects Power-point presentations are used, and these presentations are made available for the students in the *USC-Virtual* as a way to facilitate their following the course as well as their own self-learning.

In order to provide the students full access to computer resources and Internet, the Faculty has 3 computer rooms (some 60 computers all together) and additional computers in the Central Library (30 computers). During the present course 2007-08, the ratio of the number of computers available for the students in the Faculty is 1 computer/15 students; in addition, all the rooms and spaces in the Faculty are equipped with wireless connections to Internet and the *USC Virtual Campus*. The students also benefit from the special economical prices which the USC offers in a programme seeking to provide students with affordable laptops.

Moreover, both Faculty and University policy has been to reduce traditional magisterial lectures by increasing hands-on activities, either in computer rooms, laboratories, and farms or in clinical practice. However, the latter goal is difficult to attain because of the current Spanish legislation for veterinary studies which dictates the number of theoretical lectures that students must attend. At this time, major changes in this legislation are being developed. The changes will lead to a higher degree of autonomy for each university and will make the implementation of newer approaches easier.

5.1.3. Supplementary Course Notes

As stated before, there is a Virtual Library (*USC Virtual, WebCT*) that serves as an intranet where the teachers place notes and other resources for the students. In addition, some subjects have their own web sites. Access to web-based resources is free. Videos used in lectures are available in the library or *via* web. Also, there is a photocopy service where the students may find course notes produced by the teachers. However, all subjects recommend some bibliography which is available in the Central Library. The teachers strongly warn the students not to use their course notes as a substitute for the specialised books and Journals. Despite these warnings, course notes continue to be the most common information source used by our students.

5.1.4 Contractual Arrangements for Undergraduate Teaching with Outside Bodies

At present, the USC has signed Official Collaboration Agreements with the following outside bodies to specifically develop practices with undergraduate Veterinary students in order to complete their extramural fieldwork. No economic compensation is required for these agreements but a Diploma recognising the collaboration with the USC in the

training of Veterinary undergraduates is given for every academic course. Moreover, the veterinarians participating get an USC identity card with the same benefits as the rest of the staff and students. It is important to mention that all our students are covered by the University Insurance plan during their extramural fieldwork activities.

1. Official Colleges of Veterinarians: A Coruña, Lugo, Ourense and Pontevedra —one college representing each of the four Galician provinces. The number of practitioners participating in this agreement is not limited. Currently, we have 42 practitioners working in reproduction in cattle and milk quality and 32 practitioners working in medicine and surgery on cattle; all of them carry out tutorial work with a limited number of undergraduates in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

2. Galician Ministry of Agriculture: This agreement allows students to acquire experience with the official state veterinarians in charge of identification and control of movements, diseases and hygiene in those animals living in the Galician Autonomous Community. Currently we have 44 official state veterinarians carrying out tutorial work with a limited number of undergraduates in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

3. Galician Ministry of Health: Students gain experience in matters related to public health by accompanying the official veterinarians in charge of food inspection to markets, industries, warehouses, restaurants, etc. The number of veterinarians participating in this agreement is not limited. Currently we have 14 official state veterinarians carrying out tutorial work with a limited number of undergraduates in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

4. Galician Ministry of Fisheries:
A limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*) gain experience with the official state veterinary services in the ports, fish warehouses, etc, in the Autonomous Community. In addition, all students enrolled in the core subject *Food Hygiene and Inspection* receive practical classes at the port and fish warehouse in Celeiro (Lugo).

5. Lugo's State Laboratory of Animal Health:
Here students gain experience in all the diagnostic procedures of common animal diseases produced by bacteria, virus, fungi, poisons, contaminants, prions, etc. All students in core subjects like *Animal Nutrition* or *Infectious Diseases* have practical classes in this Laboratory. Also four veterinarians working in this Laboratory carry out tutorial work with a limited number of undergraduates enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

6. The Provincial Government of Lugo: this agreement develops the use of the Provincial Government of Lugo's farm "*Granxa Gaioso Castro*", located 40 km from Lugo. This farm breeds some 160 dairy cattle, 30 beef cattle ("*Rubia Gallega*" breed), a small experimental herd of Galician sheep, swine, and autoctonous fowl. All students

have access to this farm in core subjects like *Ethnology*, *Animal production*, *Infectious diseases*, etc.

7. Association of Galician Societies for Animal Charities:

The Faculty offers an elective subject (120 hours of practice = 4 credits) for a limited number of students (9/year) to work with the Veterinarian in charge of the Lugo Society for Animal Charity (320 animals). Also, the VTH signed an agreement with the Galician Ministry of the Environment to maintain a contracted veterinarian's visits to all the Galician Societies for Animal charities (10 Societies, 4,000 animals) with those students enrolled in the optional subject *Veterinary Acts in Societies for Animal Charities*. Students acquire practice in basic surgery as sterilizations, vaccinations, control of parasites, etc.

8. Slaughterhouses:

The Faculty has agreements with 7 private slaughterhouses in Galicia (NOVAFRIGSA, FRIGOLOURO, and SANTA CRUZ from COREN S.C.L. Food Company, FRILEA, FRIMIÑO, MAFRILEMOS, M.F. MONTELLOS S.A) and with the Municipal Slaughterhouse of Lugo for practical classes in food safety for all students enrolled in the core subject *Food Hygiene and Inspection* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*). Also, discarded organs from the *NOVAFRIGSA* slaughterhouse are used in the practical sessions of *Pathological Anatomy*.

9. Private Industries of Animal Breeding and Food Technology:

ADSG ATRUGAL (http://www.atrugal.org/es/) is association of 25 Galician fishfarms where students can have practical classes in the farming of rainbow trout for all students enrolled in the core subject *Infectious diseases* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*). This association produces 7,500 tons of rainbow trout which amounts to 70% of the whole production in the Galician Autonomous Community and 40% in Spain.

COGAL (http://www.cogal.net/): A food company with slaughterhouse, food processing plant and 250 rabbit and Barbery duck farms for practical classes for all students in the core subject *Animal Production* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

COREN S.C.L. (http://ingles.coren.es/): A food company with feed plants, incubators, slaughterhouses, food processing plants and farms for poultry, pork and cattle for practical sessions for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

COVIGA S.C.G. (http://www.coviga.org/) A association of 35 Galician sheep and goat farms for practical classes for all students in the core subject *Animal Production* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

CATTLE FARMS: we have agreements with 12 Galician Associations working with Dairy and/or Beef cattle *(ACRUGA, ADSG Castro de Rei, AFRICOR, AFRILUGO,*

AGRIS, Cooperativa CHAÍN, ICOS S.C.G., PIENSOS O COTO, PULEVA Food S.L., SAT Villamayor, SERAGRO, TERNERA GALLEGA) to provide practical sessions for all students enrolled in the core subjects *Animal Production* and *Infectious Diseases* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

GRANXA BONXE S.L.: A closed cycled pork breeding farm, 10 km from Lugo, for practical classes for all the students enrolled in the core subject *Animal production* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*). Also, dead pigs from this farm are used in the core subject *Pathological Anatomy*.

MILK INDUSTRIES (LARSA, RAM, PULEVA): These companies provide an opportunity for all students enrolled in the core subjects *Infectious Diseases* and *Food Hygiene and Inspection* to practice.

NUDESA, S.A. (http://www.nudesa.com/): A food company with feed plants and pork selection farms with great-grandmothers and grandmothers, multiplication farms and fattening farms for practical classes for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

OVICA (http://www.ovica.org/): An association of 222 sheep and goat farms in the Galician Autonomous Community allows for practical classes for all students enrolled in the core subject *Infectious Diseases* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

SAT "A Valiña": A milking goat farm for practical classes for all students in the core subject *Animal Production* and for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

10. Private Clinics:

EQUINE CLINICS: Three agreements in the Galician Autonomous Community (Centro Veterinario Casal do Río, S.L, Herminio Pose, and HOSPITAL EQUINUM).

SMALL ANIMAL CLINICS: we have agreements with 24 Galician Clinics for practical classes for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*): CV *Armando Piñeiro; CV "San Froilán"; Protectora Lugo; CV Recatelo; CV "A romana"; Protectora Santiago; CV Canis (A Coruña);* Residencia *Garatuxa; CV Miño; CV "A Farola"; CV Canis (Monforte de Lemos); CV Veta; CV Albéitar; Clínica veterinaria Xarope; Tea servicios veterinarios, s.l.; CV Saudevet; CV Athos; CV "Arca de Noé" ; CV Paradai; CV Puga; CV "Os Duráns"; CV Méndez Seijas; CV "Aceña de Olga"; CV Clinicán.*

11. Zoos and Wildlife Parks:

We have two agreements with zoos and wildlife parks (*Zoo "A Madroa"* in Vigo, and Wildlife Park *"Marcelle"* in Lugo) that allow for training with exotic and wild animals by carrying out tasks in clinical, reproductive, feeding or behavioural areas. They are available to a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*).

In addition to the aforementioned agreements, we have agreements outside Galicia with other Autonomous Communities for a limited number of students enrolled in the subject *Obligatory extramural fieldwork* (*"Estancias"*): 9 Large animal Clinicians, 4 Associations of Practitioners specialized in cattle from Asturias (ALBENOR, TINEO S.L., LUARCA C.B., UGATI), 9 Small Animal Clinics, 2 Pork production farms (COBADU Zamora, POVETSA Barcelona), 2 Equine Hospitals (Hospital de Caballos Cantabria, ROYVA S.L. Oviedo), and 2 wildlife parks (*Zoo Cabárceno* in Cantabria and *Zoo Park* in Córdoba).

5.2: THE TEACHING ENVIRONMENT

Describe the available staff development facilities, particularly in relation to teaching skills.
Describe the available systems for reward of teaching excellence (e.g. accelerated promotion).
Describe other measures taken to improve the quality of teaching.

5.2.1. Development Facilities

The USC has developed a programme of Formation and Innovation in learning organised by the Institute of Learning Sciences (*Instituto de Ciencias da Educación ICE*). The basic function of the ICE is pedagogical and professional in-service training for the teaching staff of the USC. To meet its objectives, it programmes various courses each year which aim to satisfy the demands of the teaching staff and academic authorities, to prepare new teaching staff or to improve teaching skills of senior professors. During the 2005-06 term forty courses were organised on the Lugo Campus and 77 on the campuses in Santiago. Attendance in the courses offered is voluntary and free of charge and they are divided into eight main areas: Teaching guides, Evaluation methods, Tutorial work, New Technologies Applied to Education, European Convergence, Strategies for the Innovation of Teaching, Teaching Skills and Prevention of Risks at Work. At http://www.usc.es/ice/docs/pfid/Informe_Final_2005-06_provisional.pdf the list of courses can be consulted. The Veterinary Faculty had the highest rate of professor attendance (270) to these courses in the USC in the 2005-06 academic year.

The USC also offers general training courses for support staff.

5.2.2. Reward for Excellence

At present, the Reward for Excellence in Teaching is based on two systems of additional economic retribution once University teachers have attained Tenured or Assistant Teacher status. To receive such economic complements, teachers voluntarily pass an internal evaluation by the University and an external evaluation by the Galician Agency for University Quality Assurance (ACSUG), in both cases every five years. For these evaluations, the teacher must prepare a self-evaluation report to show his/her merits in teaching. Additional reports are made by the Faculty Board and the Department Council. The USC recently approved (November 2007) a new Manual for the Evaluation of Teaching Activity (*Manual de Avaliación da Actividade Docente, MAAD*) that, for the next two years, will be considered as a pilot Evaluation system to better assess the teaching activity of the staff.

For excellence in research there is a similar system of evaluation. In this case, the evaluation, based mainly on the number of publications in SCI journals, is carried out every sixth year and is done on a national level by an external agency. Both evaluations on teaching and research quality are necessary to obtain promotions in the University.

5.2.3. Other Measures to Improve Teaching Quality

Teaching is periodically evaluated by means of TEAC meetings that allow us to find potential problems and to make decisions that will enable us to improve teaching quality. In addition, in many subjects, students and teachers use a virtual tutorial tool to analyse the development of the learning process. Finally, every year, the USC offers awards for Projects on Innovative Learning in a contest open to the entire USC teaching staff. These projects have to include the use of new technologies, mainly the USC's Virtual Campus and PBL (Problem Based Learning) methodology.

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?
• Are there special periods (without teaching) during the year for examinations?
• What form(s) of examination are used (written papers, multiple-choice questions, oral, practical, clinical examination, continuous assessment, etc.)?
• Is use made of external examiners?
• How many retakes of an examination are allowed?
• Do students have to pass the examination within a certain time?
• Do students have to pass an examination before they can start other courses?

With regards to the type of examinations, there is no central policy and each teacher can decide how he/she will examine his/her students. There are, however, some restrictions:

a) All major changes in the examinations for a given course must be approved by the Department and the Faculty Board.
b) Students must know, at least six months in advance, how, when, and where the examinations will be done. Any modifications in these areas must be submitted for approval well in advance to the Faculty Board.
c) All exams are subjected to the general rules of the University regarding this subject.

Periods for examinations are determined by the University Council. Usually, three periods are allowed, (1) three weeks in January-February for courses taught during the first semester, (2) three weeks in June-July for second semester and year-long subjects and (3) two weeks in September for re-examination of students who did not pass their examinations in February or June. The examination calendar has to be adapted to these periods, approved each year by the Faculty Board, published far in advance by the Dean's Executive Team Secretary, and also posted on the Faculty web page. During these examination periods neither lectures nor practical classes are held. The only external examiners are those practitioners carrying out tutorial work with students in the core subject *Obligatory extramural fieldwork* ("*Estancias*").

As determined by Spanish law, a student is allowed a maximum of six retakes. Students failing to pass a course after the sixth examination are expelled from the University. Nevertheless, under special circumstances a student may ask the Rector for permission to sit his/her seventh final retake. However, this total only takes into account the number of times that the student has attended the examination. Thus, if a student is not physically present on the day of the examination it does not enter into the total. As stated before, each course has a fixed final examination date.

For students failing to pass a course, some restrictions apply. For instance, a student who does not pass a number of courses totalling at least 300 hours in the first three years of enrolment is dismissed. For students finishing their first year, they can take some new second year courses even if they failed some first year subjects. In this case, they are allowed to continue, provided that they enrol again in the subjects that they failed to pass. To move on to the 3rd year, students must have passed a total of 92 credits, i.e. 70% of the credits from the 1st and 2nd year core subjects. Finally, to be enrolled in the core subject *Obligatory extramural fieldwork* (*"Estancias"*) students must have passed all the 1st, 2nd and 3rd year core subjects.

Various methods of evaluation are used in the different subjects. Most subjects assess theoretical knowledge and practical skills separately. The first is usually done by means of written exams (mainly multiple-choice tests). More details are shown in Table 20.

Evaluation Method	Number of subjects
Written (multiple choice questions, short questions, problems, etc)	28 core subjects 9 elective subjects
Continuous assessment (attendance to lectures and practices, aptitude, attitude, etc)	15 core subjects 6 elective subjects
Students autonomous work (report of practices, presentation of clinical cases, etc)	15 core subjects
Oral examination	4 core subjects 1 elective subject

TABLE 20. Types of Examination Systems and their Distribution

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.
Describe the role of students in the evaluation of teaching and teachers.
Describe the follow-up given to the evaluation.

External assessment of quality is done at a national level through a programme called National Plan for Quality of Universities. This plan is carried out by the MEC and the agencies for quality assurance (in the Galician Autonomous Community by the *Axencia de Calidade do Sistema Universitario Galego,* ACSUG). In this plan, a three-phase process is established for the evaluation of quality: self-assessment, external evaluation and drawing up of a final report.

At University level, the Vice-Rector for Quality Assurance is responsible for the development of a plan for improving quality in the USC approved by the USC Government Board on September 29th, 2004 (http://www.usc.es/~calidade/PlanCalidad_i.pdf). This plan was recently reinforced with the design of a new programme named MAAD ("Manual of Evaluation of Teaching Activity"). As mentioned before, in this two-year pilot study professors voluntarily request his/her assessment, based on many items: fulfilment of teaching work, methodology of teaching, satisfaction by the students, attendance to meetings and commissions related to teaching, participation in programmes of formation and innovation in learning, development of Continuing Education programmes, etc. This assessment of teaching quality will be mandatory for all the professors, every five years, after the academic year 2007-08.

Also, the Vice-Rector for Quality Assurance is responsible for developing the survey on students' satisfaction with the teachers that have been carried out since 1995. This all the students present in class are surveyed to evaluate their teachers. After the analysis of data, the Vice-Rector sends an individual report for each professor. This report is also available for the Dean and the Department Head. Results affecting the subjects, Departments, Faculty and University are published in the web.

On a Faculty level, the TEAC is responsible for analysing and discussing any teaching related problems which may arise during the academic year and for studying every substantial change in teaching methodologies or examination systems that will also have to be presented and defended in front of the Faculty Board. This Commission, made up of teachers and students, has the right to refuse changes if these do not fit the programme goals or the Faculty policies. All the participants (which include a high number of students) are encouraged to freely express their opinions. In addition, each Department or subject area is free to carry out surveys, which it designs and evaluates, on its own initiative.

Students actively participate in the evaluation of teaching. They voluntarily participate in the survey about their satisfaction with the teachers developed by the Vice-Rector for Quality Assurance. They are also members of the TEAC, the main teaching monitoring Committee of our Faculty. In addition student representatives on the Faculty Board have free access to the Vice-Dean for Teaching Affairs in order to resolve problems related to teaching which may occur.

All data about teaching evaluation is reviewed as a follow-up by participants on many levels (Vice-Rector for Quality Assurance, TEAC, Departments, Subjects, Professors) so as to improve the quality of teaching at the Faculty. As an example, the average level of students' satisfaction (academic year 2005-06) with teaching in the Veterinary Faculty was 3.52 and with teaching in the USC was 3.38 on a scale from 1 (unsatisfactory) to 5 (very satisfactory). Figure 10 summarises the results on the level of students' satisfaction with teaching in the Veterinary Faculty and the USC over the last 5 academic courses.

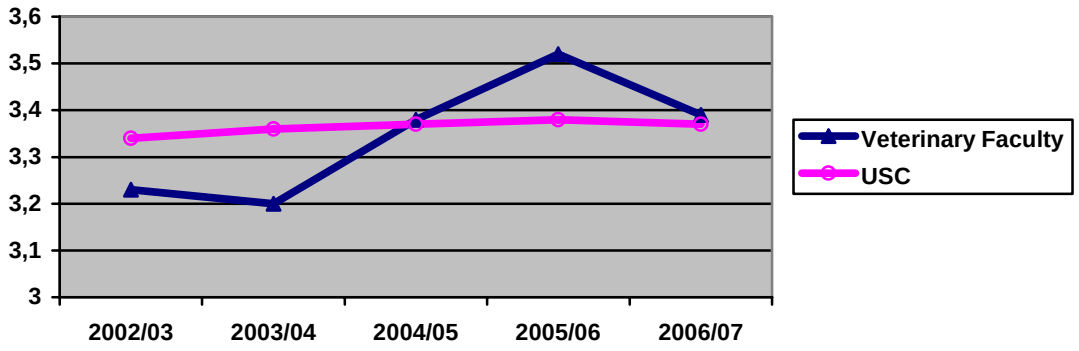


FIGURE 10. Evolution of the Level of Students' Satisfaction.

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

5.5.1. Facilities

The sports facilities of the USC offer the entire university community many different kinds of opportunities for enjoying sports, competition, and free time leisure activities. These facilities include a conditioned swimming-pool, a multi-use complex, a Sports Centre, a football court, 4 tennis courts and a Hockey court. These facilities, located in Santiago, are available to the entire university community. Additionally, along with the Vice-Rector for Cultural Outreach, the Veterinary Faculty organises some sport activities for all the staff (professors, support staff and students) inside our Centre: Yoga, Tai Chi, Pilates, Oriental Belly-dancing, Archery and Trekking. Moreover the USC has an agreement with the Lugo's City Council for the practice of several sport activities (CD "*As Gándaras*", CD "*O Palomar*", Pazo de Deportes, Piscina "*As Pedreiras*"), with the Horse Racetrack and Residence "*Equus*" and with the private swimming pool "*Club Fluvial de Lugo*".

Other facilities for recreation on the Santiago Campus are: an Auditorium, a Sound Library, the *Roberto Vidal Bolaño* Theatre room, a *Luísa Cuesta* Room, and the *Fonseca* Parlour, Exposition room, Chapel and Library. On the Lugo campus the recreation facilities are all located in the Veterinary Faculty: a Theatre & Dance Room, a Photography laboratory, and the *Isaac Díaz Pardo* Exposition Hall. The numerous cultural activities of the USC are quite varied and take place in different internal or external centres. A complete list of these is published in the web pages of the Vice-Rector for Cultural Outreach (http://www.usc.es/cultura/axenda.htm).

The Residence Halls (*Residencias Universitarias*) are centres integrated into the USC which provide student housing and promote the cultural and scientific development of their residents. The "*Bal e Gay"* Residence Hall belonging to the USC is located in the Lugo's Campus (http://www.usc.es/balygay/index.htm) and governed by the *USC Statutes*. The "*Abeiro*" Residence Hall (http://www.abeiro2000.es/) located in the Lugo's Campus is a private Residence which offers special prices for the USC students.

The Faculty has a large cafeteria in the Central Pavilion with seating for 200. In the hall in the Classroom Pavilion and the VTH there are also vending machines.

USC students are organised in 58 different associations. This Faculty also facilitates the activities of 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), *A.P.I.P.* (Association for the Promotion of Investigation in Undergraduate Students), *I.V.S.A.* (Lugo's branch of the International Veterinary Students' Association), *N.A.D.A.* (Nature and Animal Protection), the Galician Society of Veterinarians Specialized in Wild Fauna, and *Tuna de Veterinaria* (Student Music Group). These associations are housed in five rooms in the classroom Pavilion, with a telephone and computer with Internet access in each. All these associations can use the facilities of the Faculty, mainly the Auditorium, for meetings, congresses or other activities.

The VTH has a leisure-TV room, a refreshment room with microwave and refrigerator, a Library-study room and 4 bedrooms.

5.5.2. Guidance

For students with financial difficulties there are grants, from the Spanish Ministry of Education and the USC, available 'for general purposes and transport costs' which are awarded depending on personal and family income and academic performance (http://www.usc.es/gl/perfiles/estudantes/est_infoaxualu.jsp)

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

The University Ombudsman (*Valedor da Comunidade Universitaria http://www.usc.es/valedor/*) is another important source of orientation for the university community. This figure, included in the USC Statutes is responsible for defending and protecting the rights of the University Student and for ensuring that they fulfil their obligations. All the students of the USC may present their problems, complaints etc. directly to the Ombudsman.

The *SEPIU* (Service for Participation and Integration, http://www.usc.es/sepiu/) is a USC Service that provides direct attention to all those in the USC community with disabilities. This service facilitates personalised support to those students with special requirements. Also, the Residence Halls have some bedrooms adapted for persons with disabilities. This University Service organises formation courses recognised with credits to all students in an attempt to make the University Community more aware and help in as a volunteer working with disabled people or people with problems in social integration.

Apart from the Spanish general health insurance coverage, all the students have the USC health insurance coverage under the "*Seguro Escolar*" which is included in their enrolment fees (http://www.usc.es/sxa/index.php?vista=matricula&submenu=seguro). This student insurance provides 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.).

As far as the labour market is concerned, the USC has a Service (*SAAE,* http://www.usc.es/gl/servizos/saee/index.jsp) to promote the labour orientation of graduates and to assist university students in finding their place as professionals in the labour market. This Service has an Area for Employment Orientation and Insertion Office on the Lugo Campus. They 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; maintain job offer registers; offer orientation sessions on employment and job seeking; and facilitate Agreements on On the Job Training.

The Rector's Office also includes an Office for Gender Equality (*Oficina de Igualdade de Xénero*, http://www.usc.es/gl/servizos/portadas/oix.jsp) which has as the basic aim of consolidating the concept of equal opportunities for men and women in the entire University community.

Finally, the USC has agreements to offer special awards to the University Community in private Residence Halls, Hotels, Health Resorts, shops and bus transport.

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.

The quality of teaching in the Faculty can be considered as satisfactory. Over the last few years, the quality of the teaching programme has improved. Major advances were the implementation of the new curriculum from the academic year 2001-02, a very high level in the accomplishment of teaching duties and learning objectives and a strict control of all facets of teaching. However, there are several aspects that should be changed in order to continue make the teaching better. First, there is an urgent need for a new change in the curriculum, probably not in terms of the contents themselves, but with respect to the distribution of those contents and in teaching methodologies.

Second, the active participation of students through autonomous work should be further promoted. The number of hours dedicated to oral presentations is still scarce and thus, communication skills are not developed as completely as they should be. The number of written exams, particularly test or multiple choice exams, is excessive when compared to continuous evaluation or other types of examination. Furthermore, this is another reason that communication skills decline.

Third, the accumulation of exams in three separate periods tires the students and leads to them to envision the exams as an end instead of a mean in their learning process. In addition, to a certain extent, this system rewards memory-work. While this is an important component of learning, other skills are penalized. The number of retakes is too high and unjustified, except for special circumstances. Nevertheless, the latter cannot be corrected without changing USC Regulations.

Fourth, rewards for excellence in teaching are scarce; thus, they do not stimulate teachers to improve and what is worse, they even discourage good teachers because any effort beyond their normal duties is not rewarded.

In the Spanish educational system, external examiners are not a common figure for undergraduate studies, despite the fact that their contributions might be valuable since they could render a good perspective of what skills are needed for the day-to-day work of a "normal" veterinarian. However, under the existing regulations, these external examiners can only act as consultants and, in no case are they allowed to decide whether or not a given student can pass a course. We have introduced external examiners for the evaluation of the students enrolled in the core subject *Obligatory extramural fieldwork* ("*Estancias*") in the final year of the degree.

As stated above, students are implicated in the monitoring of courses since there are student representatives in all the Faculty Committees in charge of those issues, and they have a large number of representatives in the Faculty Board (30%). In addition, they also take part in the evaluation of the academic staff every year. Nevertheless, their participation should increase in order for more feed-back to be included in changes. Moreover, by law, any curriculum changes must include student participation. However, because the student population changes annually, it is difficult for them to be dynamically involved.

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?

A series of actions should be undertaken in order to improve the examination system:
a) Since there are three main exam periods, students complain that their study load is too heavy at these times. To avoid this and to obtain a more balanced assessment of the students' overall performance, the use of continuous evaluation activities should be increased. This is already being done and over the next few years, the fixed periods of examination will most probably disappear.
b) The number of oral examinations, presentations and hands-on examination should be increased.

c) The number of retakes in every subject should be decreased. However, this means that the *USC Regulations* will have to be modified.

The quality of teaching should be improved with several steps directed both at professors and at the teaching system.

a) The introduction of new teaching methods in a University with a very high number of students poses a real challenge in both human and material terms. Nevertheless, we would like to focus on the implementation of teaching methods which shift the emphasis away from memorising and towards managing information, didactic teaching to small groups and problem-oriented learning. This methodology should also promote a horizontal and vertical integration of disciplines. To achieve this goal we need to adapt certain infrastructures (smaller class/seminar rooms, an improved provision of IT facilities, etc.), to increase the number of academic and support staff, and to reduce the excessively large number of students. More funding will be necessary in order to solve these issues adequately.

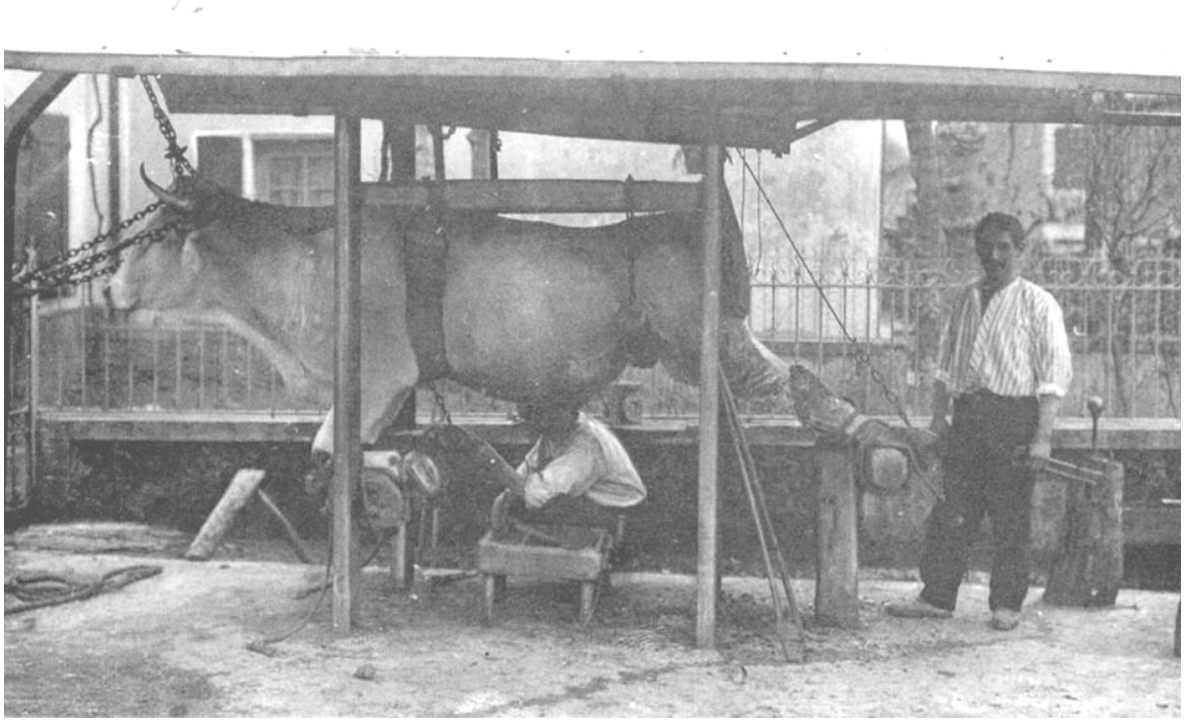
b) Interactive computer-assisted learning is an increasing component of the courses taught at the Faculty; both teachers and students should be encouraged to use the IT facilities and the USC *Virtual* to a greater extent.

c) In order to implement the aforementioned teaching methods, it is essential to include some changes in the new curriculum and also to increase and improve the formative programmes offered to professors and support staff. Furthermore, having new staff who participate in a compulsory comprehensive induction course dealing with the development and assessment of new teaching methods would surely have a positive impact.

d) In order for our students to develop the skills currently demanded by the labour market, the opinion of external bodies and Veterinary Practitioners should be considered. The survey results of a project recently carried out with funding from the Spanish Agency for Quality Assessment and Accreditation, ANECA, should be taken into account when the new veterinary curriculum is designed. An advisory council made up of faculty members, professional colleges, private practitioners, industries, etc. will help to achieve this end.

e) The rewards for Excellence in Teaching should be increased (in terms of salaries, promotions or sabbatical leaves). This will further heighten motivation and will encourage those with lower marks. However, these rewards depend on USC policies.

f) The use of books, journals and web-available resources should be augmented in order to enhance the students' management of information skills.



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.

The Veterinary Faculty is located on the USC's Campus in Lugo. It is situated on the southern side of the city of Lugo, 3 km away from the city centre. This location provides many advantages and vehicular access is quite easy, both from outside the city (the Faculty is close to one of the main road accesses), as well as from the city centre (just 20 minutes walking). This zone is well connected with the city by public transport, and there are plenty of facilities in the surrounding areas.

The Faculty area comprises a 51,620 m² estate on which 40,934 m² have been developed and a total extension of 31,728 m² has been built in order to accommodate the Faculty's eight basic structural units. These are: the Central Pavilion, the Auditorium, the Classrooms, four Department Pavilions, and the Clinics, which include the VTH. The general plan of all the Faculty's facilities is shown in Figure 11, indicating the location of all buildings, which are described in detail below.

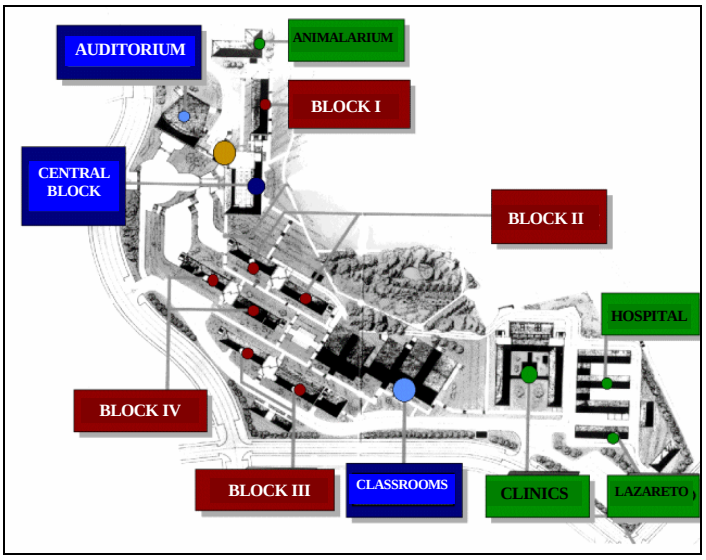
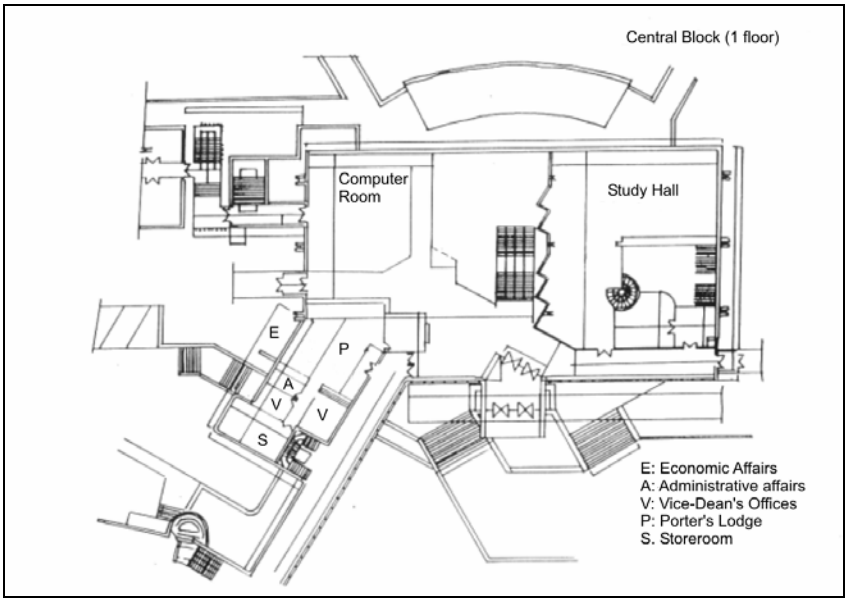
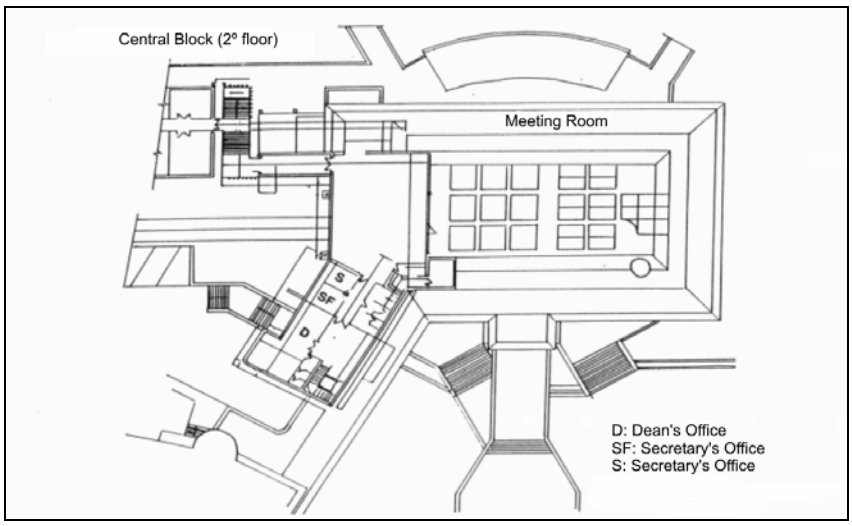


FIGURE 11. The General Plan of all the Faculty's Facilities

Central Pavilion. The Central Pavilion has a total area of 3,178 m², which is divided into three stories: the ground floor (1,598 m²), the first floor (1,676 m²), and the second

floor (444 m²). It houses the various Management offices (Dean's office, Vice-Dean's office, Secretary's office), Administrative and Financial Affairs offices, Storeroom, Meeting Room and Assembly Room, Commissionaire's Office, (Porter's Lodge in Figure 6.2) Computer Room and Computer-assisted Teaching Rooms, Study room, Audiovisual Room, Telecommunication room, Exhibition Hall, Bank Office and Cafeteria/Dinning Room, as well as spacious halls. (Figures 12, 13, 14, 15 and 16).





FIGURES 12 and 13. First & Second Floors in the Central Pavilion.

FIGURE 14. Central Pavilion

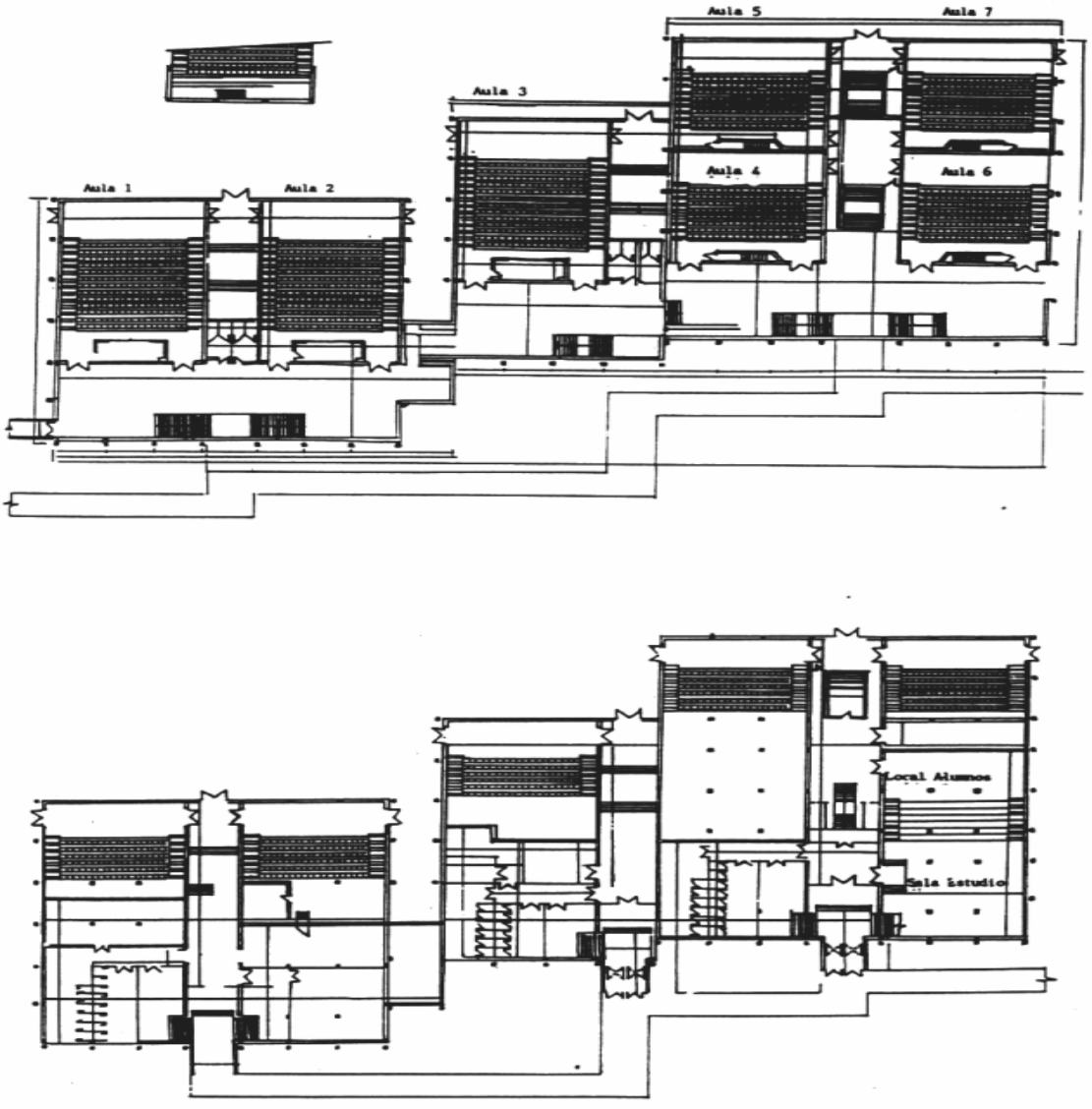
FIGURE 15. Study Room

Auditorium. The 1,707 m² Auditorium is externally connected with the general hall that gives access to the building, and internally with the Central Pavilion. It has an ample foyer and showroom, and a conference hall with 635 seats fitted with an attached collapsible desk which are distributed on various levels in the lecture theatre (Figure 16). The conference hall is air-conditioned and fit to host conferences and conventions as well as visual shows and musical performances. It is equipped with computerized projection systems, a full-size screen, a professional sound system, and four rooms for simultaneous translation. The sound equipment is suitable for auditions and it includes wire-free microphones and Wi-Fi covering for computers. It is also equipped with a computer and digital projection equipment. As a whole, the conference hall is superbly prepared and it is regularly used not only for those events specifically related to the Veterinary Faculty and the University, but also for most of the scientific conventions and conferences held in Lugo. Finally, the Auditorium facilities also include the 170 m² engine room, rooms for the reception of congress-attendants, rooms for provisional offices, storage rooms, restrooms, and ample independent areas that give access to the lecture theatre and the translation and control rooms on two different levels.

FIGURE 16. Auditorium

Classroom Area. Seven large classrooms are available in the Faculty. All of them are located in one area right next to the Department Pavillions, thus facilitating the mobility of students and professors alike for theoretical and practical teaching, seminars, and tutorial activities. The classroom area extends over 5,000 m², and all the rooms are oriented in the same direction and have a graded lecture theatre layout; the desks are organized in tiers. In addition, they all have Wi-Fi coverage. Three of the classrooms can hold up to 234 people, while the remaining four have 144 seats each. (Figure 17)

FIGURE 17. Plan of the Classroom area.



The seven classrooms are fully independent from each other except for the ample corridors that connect them and the main hall that covers the whole of the classroom area on the upper level. This hall has ample windows and skylights that let in a great

amount of daylight (Figures 18 and 19). All the classrooms are equipped with electric curtains to keep the light out, computers, digital projectors with remote control, full-size screens and air conditioning. Besides, the three bigger classrooms (Room 1. "Severo Ochoa", Rooms 2 and 3) are fitted with sound systems (Figure 20).

FIGURE 18.Classroom Area

FIGURE 19. Classroom Area

Apart from the rooms destined to lectures and theoretical teaching, the Classroom Area also provides space for the Reprography and Bookbinding Service, the rooms for the Student Representatives, several rooms for Student Associations on the campus: one for the *Tuna de Veterinaria* (Veterinary traditional music group), and others for several associations such as (Veterinarios sin Fronteras/Vets without Frontiers, Association for Promotion of Research in Predoctoral Levels APIP, International Veterinary Students' Association IVSA), Protective Society of Animals and Plants, Galician Society of Veterinarians Specialized in Wild Fauna, etc. One of the rooms is used by the Theatre Group. Also there are multi-purpose rooms where different activities are carried out (i.e. Pets grooming course).

FIGURE 20. Room 1. "*Severo Ochoa*"

FIGURE 21. Outside of Classroom Area

The Classroom Area has spacious restrooms for the students. There is a wider space at the entrance of every classroom to facilitate wheelchair access (Figure 20) and ramps

outside which help physically disabled people move around the various levels (Figure 21).

Department Pavilions. The four Pavilions destined to the Departments and Teaching Units extend over 14,650 m² (Figures 22 and 23). They house the different teaching branches of the Faculty except Mathematics, Physics and Chemistry, which are located in the Science Faculty. There are other installations situated in these Pavilions, such as the Animalarium, the Necropsy Room, the Anatomical Dissection Room and the Museum, etc.

FIGURE 22.General View of the Pavilions

FIGURE 23. Department Pavilions

All the different services and units housed by these Pavilions are listed below, together with their location and the space available for them.

Pavilion I. With a total extension of 2,802 m², it is divided into three floors: ground floor (1,394 m²), first floor (751 m²) and second floor (657 m²).
• Ground floor: Animalarium and Cremation Service (643 m²).
• Ground floor: Parasitology and Parasitic Diseases (751 m²).
• First floor: Infectious Pathology and Epizootiology (751 m²).
• Second floor: Microbiology (Bacteriology, Immunology and Virology) (657 m²).

Pavilion II. Comprising a total extension of 3,426 m², it is divided into three stories with 1,142 m² and two wings each (left and right), and it houses Teaching Units and Common laboratories and seminars.
• Ground floor, right wing: Common laboratories and seminars (571 m²) and a multi-purpose room where different activities are carried out (i.e. Pets grooming course).
• Ground floor, left wing: Common laboratories and seminars (571 m²).
• First floor, right wing: Toxicology and Veterinary Legislation (571 m²).
• First floor, left wing: Biochemistry (571 m²).
• Second floor, right wing: Physiology, Ethology and Animal Protection (571 m²).
• Second floor, left wing: Pharmacology and Therapeutics (571 m²).

Pavilion III. With a total extension of 4,069 m², it comprises three stories: ground floor (1,787 m²), first floor (1,136 m²), and second floor (1,146 m²). This Pavilion houses the Necropsy Room and its annexed rooms, as well as the Anatomical Dissection Room, the Museum, and annexed rooms.

- Ground floor, right wing: Necropsy Room and annexed rooms (590 m²).
- Ground floor, left wing: Anatomical Dissection Room, Museum and annexed rooms (1.190 m²).
- First floor, right wing: Veterinary Pathological Anatomy (573 m²).
- First floor, left wing: Biology (Zoology and Botany) (573 m²).
- Second floor, right wing: Cytology and Veterinary Histology (573 m²).
- Second floor, left wing: Veterinary Anatomy and Embryology (573 m²).

Pavilion IV. With a total extension of 4,351 m², it has four stories and a basement fitted to house a multi-purpose room where different activities are carried out (i.e. Cultural and sports activities). The three bottom floors extend over 1,142 m² each, while the fourth floor extends over 925 m², and is covered with skylight windows.

- Basement: multi-purpose room (182 m²).
- Ground floor, right wing: Hygiene and Food Inspection (571 m²).
- Ground floor, left wing: Ethnology, Animal Production and Identification (571 m²).
- First floor, right wing: Food Technology (571 m²).
- First floor, left wing: Agrarian Economy and Animal Nutrition (571 m²).
- Second floor, right wing: Agriculture and Agronomy (571 m²).
- Second floor, left wing: Genetic Science (568 m²).
- Third floor, right wing: Botanics Departament (462 m²).
- Third floor, left wing: Medical Service Office of the Lugo's Campus (462 m²).

The Veterinary Teaching Hospital Building and Clinical Area. The whole VTH "*Rof Codina*" (Figure 24) comprises a total surface of 5,000 square meters, 3,000 of which belong to the central building and are used for exam rooms and all the necessary additional infrastructures, such as surgical halls, diagnosis rooms or small animal hospitalization rooms. The four teaching branches dealing with purely clinical matters are located on the top floor, The remaining 2,000 m² include four buildings (barns) for large animal hospitalization and animal experimentation rooms, as well as a store room and a maintenance room.

Small animal exam rooms, surgical halls, the pharmacy, the classroom for clinical meetings (library), the clinical laboratory, the diagnostic imaging area, the small animal hospitalization area and the administrative services can be found on the ground floor of the central building (3,000 m²).

The exam area has five rooms, two of them are quite large. In the same zone there is a small auxiliary laboratory. The main laboratory and the pharmacy are located nearby.

The surgical room area has four properly equipped operating rooms destined for different uses, an area for animal preparation and a small hospitalization room dedicated to the awakening of surgical patients. In the same zone there is a small store, the laundry room and the sterilization room. In addition, a surgical room for large animals and an

operating room for small ruminants is not currently in use, but is now destined to storing material can be found here.
The area dedicated to diagnostic imaging has a room for ultrasound scan in which two dopple ultrasound scanners are located, a radiograph visualising room with light boxes, and an exposition room with automatic equipment. There are two X-ray machines—one for large animals and another for small animals; they are correctly separated and thus, allow for simultaneous use. Beside this area there is a room assigned to Computerised Tomography Scan.
In the attached barns we can find the area dedicated to large animal consultation and hospitalization as well as different dependences for animals with infectious diseases, animals used in the practical classes and rooms for experimental animals. In these annexes, there is also a classroom in which to carry out practical classes for *Propaedeutics*.

FIGURE 24. General View of the VTH Building and Clinical Area

The top floor of the central building (1,848 m²) is assigned to the Department of Veterinary Clinical Sciences and Department of Animal Pathology, and houses the offices of teachers and laboratories as follows:
• Top floor right wing: General Pathology and Medical Pathology (616 m²).
• Top floor central wing: Surgery and Surgical Pathology (616 m²).
• Top floor left wing: Obstetrics, Reproduction Pathology and Artificial Insemination (616 m²).

Development, communication, gardens and remaining areas: The various buildings of the Faculty are connected to each other by means of covered pedestrian walkways having a total extension of 1,600 m², as well as by a large 1,334 m² multiple-use porch underneath the platform leading into the Central Pavilion. The remaining developed area includes 14,000 m² of pavement and sidewalks and some 24,000 m² of green areas, as well as a gardened area which at present covers 10,686 m². All the

Faculty buildings and communication passages and walkways have ramps and/or elevating devices for the physically disabled as well as for the transportation of goods and materials.

Apart from the main access to the Central Pavilion and Auditorium through the elevated access platform, the Faculty has several other means of access for people and goods, which communicate the exterior passages with the Animalarium and Cremation Service, the Classroom Area, the Department Pavilions and the VTH.

The remaining area of the Faculty is occupied by the Commissionaire's office (114 m^2), the maintenance services (100 m^2), the electrical system (54 m^2), USC Central Communications Service and Telecommunications Area (108 m^2). Thus, all of this represents the entire constructed area of the Veterinary Faculty, a total of 31,728 m^2 devoted to teaching, research and the services it provides.

6.2: PREMISES USED FOR CLINICS AND HOSPITALISATION

TABLE 21. Places Available for Clinics & Hospitalisation

CATTLE	**21 standing places**	**Standing places can be used indistinctly for sick animals or animals for teaching purposes.**
	4 individual boxes	Individual boxes intended to house cattle, small ruminants and pigs can be used indistinctly for any of these species.
	5 individual boxes	
	4 individual boxes for calves	Mainly for re-hydration purposes due to neonatal diseases.
HORSES	5 individual boxes	Individual boxes intended to house cattle and horses can be used indistinctly for any of these species.
	9 individual boxes	
DOGS	8 in Hospitalisation	
	3 cages in ICU Hospitalisation	These cages can be divided to house 2 animals each, and may house up to 6 animals. Can be used for cats or dogs.
	7 cages in Surgery Hospitalisation	Two of these cages can be divided to house 2 animals each. Can be used for cats or dogs.
CATS	5 cages in Hospitalisation	
	3 cages in ICU Hospitalisation	These cages can be divided to house 2 animals each and may house up to 6 animals. Can be used for cats or dogs.
	7 cages in Surgery Hospitalisation	Two of these cages can be divided to house 2 animals each. Can be used for cats or dogs.
SMALL RUMINANTS	4 individual boxes (Accommodating 2-4 animals each)	Individual boxes intended to house cattle, small ruminants and pigs; can be used indistinctly for any of these species.
PIGS	4 individual boxes (Accommodating 2-4 animals each)	Individual boxes intended to house cattle, small ruminants and pigs; can be used indistinctly for any of these species.

Number of animals that can be accommodated in isolation facilities:

- Small Animals: Two rooms with 7 places that can be used for cats or dogs.
- Food animals and horses: 3 individual boxes.

6.3: PREMISES FOR ANIMALS

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

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

- Four beagle dogs are always available in the hospital kennels for practical training in several non-invasive methods related to clinical matters (physical exploration, *Propaedeutics*, ultrasonography, etc.).
- Twenty cows and two mares are available full-time at the Veterinary Teaching Hospital for teaching in *Obstetrics* & *Reproduction* and *Propaedeutics*.
- In one of the VTH barns there is an additional area for animal rearing and handling of normal animals for teaching purposes as well as for the lodging of experimentation/research animals.

Although the different spaces (rooms) (16,35 m^2 each) can have multiple uses, currently they are distributed as follows:

- 2 rooms for birds
- 2 rooms for rabbits.
- 6 rooms that can shelter sheep or goats.
- 6 rooms stalls that are destined to pigs.
- 2 rooms additionally destined to birds when necessary.
- 4 rooms with 3 individual kennels for dogs.

The Veterinary Faculty and VTH have agreements with several outdoor farms and companies to ensure *in-situ* clinical and production training. The outdoor farms and companies visited by our students are described in Chapter 7, section 7.2.

Laboratory Animal Facility: This Service fulfils the recommendations and requirements established by current Spanish and EU legislation on animal protection and welfare (Annex II; 86/609/CEE Directive). Thus, it is officially approved and registered by the corresponding Galician authorities. The rodents are mainly provided by a USC Laboratory Animal Facility in Santiago. The Faculty only maintains them for teaching and research purposes. The majority of rodents used are mice (BALB/C), rats (WISTAR), New Zealand Albino Rabbits, and, occasionally, Guinea pigs (cricetum). Other rooms house rabbits. As regards fish, salmon, trout, and algae are mainly kept for teaching and research purposes in the aquarium complex, and are either provided from fish hatcheries with which the Teaching Units maintain working and collaboration links,

projects or contracts, or they are directly caught using natural means by the researchers working in the projects.

6.4: PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

TABLE 22. Premises for Lecturing

Number of lecture halls: 7

Number of places per lecture hall

Hall	Aula 1	Aula 2	Aula 3	Aula 4	Aula 5	Aula 6	Aula 7
Places	234	234	234	144	144	144	144

Total number of places in lecture halls: 1,278

TABLE 23A. 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:

Room	no.1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	no. 8
Places	15	12	6	14	14	8	20	10
Room	no.9	no. 10	no. 11	no. 12	no. 13	no. 14	no. 15	no. 16
Places	15	7	15	8	10	10	20	25
Room	no.17	no. 18	no. 19	no. 20	no. 21	no. 22	no. 23	
Places	28	10	25	10	10	66	40	

Total number of places in rooms for group work: **398**

TABLE 23B. Premises for Group Work
Number of rooms that can be used for group work (supervised work)
Faculty name of rooms for group work:

Room no.	Subject	Denomination	Places
1	Anatomy	Seminary room	15
2	Anatomy	Museum	12
3	Pathological Anatomy	Discussion room (Microscopy)	6
4	Epidemiology	Seminary room	14
5	Physiology	Seminary room	14
6	Physiopathology	Seminary room	8
7	Toxicology	Seminary room	20
8	Surgery	Seminary room	10
9	Medical Pathology	Seminary room	15
10	Radiology	Seminary room	7
11	Food Hygiene	Seminary room	15
12	Food Technology	Seminary room	8
13	Diagnostic Imaging	Seminary room	10
14	Genetic	Seminary room	10
15	Agriculture	Seminary room	20
16	Ethnology	Seminary room	25
17	Animal Nutrition	Seminary room	28
18	Preventive Medicine	Seminary room	10
19	Animal Production	Seminary room	25
20	Infection Diseases	Seminary room	10
21	Parasitic Diseases	Seminary room	10
22	General	Lower lecture halls (1)	66
23	General	Lower lecture halls (2)	40

Total number of places in rooms for group work: **398**

TABLE 24A. Premises for Practical Work
Number of laboratories for practical work by students
Number of places per laboratory

Room	no.1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	no. 8
Places	60	20	20	24	14	16	15	16
Room	no.9	no. 10	no. 11	no. 12	no. 13	no. 14	no. 15	no. 16
Places	12	18	18	20	20	16	16	20
Room	no.17	no. 18	no. 19	no. 20	no. 21	no. 22	no. 23	no. 24
Places	20	20	10	20	25	15	15	10
Room	no.25	no. 26	no. 27	no. 28	no. 29	no. 30	no. 31	no. 32
Places	10	20	10	20	14	20	20	20
Room	no.33	no. 34	no. 35	no. 36				
Places	20	60	20	10				

Total number of places in laboratories: **704**

TABLE 24B. Premises for Practical Work

Number of laboratories for practical work by students

Faculty name of the laboratories

Room no	Subject	Denomination	Places
1	Anatomy	Dissection room	60
2	Anatomy	Laboratory	20
3	Biophysics	Laboratory	20
4	Biology-1	Laboratory	24
5	Biology-2	Laboratory	14
6	Molecular Biochemistry	Laboratory	16
7	Organs Biochemistry	Laboratory	15
8	Physiology	Laboratory	16
9	Physiopathology	Laboratory	12
10	Immunology	Laboratory	18
11	Microbiology	Laboratory	18
12	Parasitology	Laboratory	20
13	Chemistry	Laboratory	20
14	Toxicology	Laboratory	16
15	Deontology	Laboratory	16
16	Genetic	Laboratory	20
17	Food Hygiene	Laboratory	20
18	Food Technology	Laboratory	20
19	Genetics	Laboratory	10
20	Agriculture	Laboratory	20
21	Ethnology	Laboratory	25
22	Animal Nutrition 1	Laboratory	15
23	Animal Nutrition 2	Laboratory	15
24	Animal Production 1	Laboratory	10
25	Animal Production 2	Laboratory	10
26	Infectious Diseases	Laboratory	20
27	Parasitic Diseases VTH	Laboratory	10
28	Aquiculture 1	Laboratory	20
29	Aquiculture 2	Laboratory	14
30	Zoonoses	Laboratory	20
31	Preventive Medicine	Laboratory	20
32	Reproduction Biotechnology	Laboratory	20
33	Obstetrics	Laboratory	20
34	Pathological Anatomy	Necropsy room	60
35	Pathological Anatomy	Histopathology Laboratory	20
36	Pathological Anatomy	Histopathology Microscope Room	10

Total number of places in laboratories: 704

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).

The USC Security Service manages the facilities for protection, evacuation and indications against fires. It makes self-protection plans, evacuation plans and fire drills among others.

The main corridors are all equipped with automatic fire extinguishers and emergency doors. Moreover, there are several emergency showers close to the laboratory doors. Laboratories are equipped with fire extinguishers, aspiration systems, biological and chemical waste and sharps collectors, that are periodically revised and replaced, as well as disposable paper devices. In the Microbiology and Infectious Diseases laboratories level 2 bio-safety measures are applied and when needed, work is done in a flow hood. First-aid kits are located in or close to the laboratories. Inside the laboratories, eyewash emergency units are also available. When needed, gloves, protection glasses and masks are provided for the students. Before practical work within the laboratories, students are always given basic recommendations and guidelines to carry out their work under good laboratorial practice protocols, in order to ensure their safety. Use of working clothes is mandatory in the laboratories, dissection room, farms, etc. Inside the necropsy room, standard measures of bio-safety are compulsory: the working clothes and boots that are available for the students in the necropsy room are washed in the VTH. Boots must be disinfected before leaving the necropsy room.

Safety is a priority in all the practical classes carried out in the VTH. When managing small or large animals, students always handle them under the supervision of a professor, and those animals which can be problematic are usually directly handled by the teacher. If necessary, sedation protocols and/or other restraint procedures are used.

The students are instructed how to manage dangerous substances in the VTH. Concerning the use of cytostatics, these are always prepared by the teacher following the general recommendations of use and management of these drugs.

The X-ray room and the scanner room are equipped with the necessary protection facilities and all the students are instructed about the risks that the exposure to this type of radiation implies. The professors watch carefully to make sure that the safety measures are correctly followed.

In the case of an accident on the Faculty premises, The USC medical service can intervene. Injured people can be treated by this medical service located in the Faculty. If necessary, they can be evacuated to the nearest hospital (3 km away).

There is also a special office, USC Prevention of Risks at Work Service, to identify possible risks. This office makes regular inspections of buildings and activities, analyses the circumstances of possible accidents and proposes preventive measures.

6.5: DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

Diagnostic laboratories
Briefly describe the facilities available for clinical pathology, diagnostic pathology.

The Veterinary Faculty has several specialised services. These laboratories provide service to the Faculty, the VTH, and to external veterinarians and private companies. The current diagnostic services are:

Bacteriology Laboratory *E.coli* Reference Laboratory for Spain and Europe: Provides essential laboratory services in bacteriology and mycology, quality control, and research and development. It is specialised in *E. coli* diagnose and research.

Genetic Diagnostic Service: This service affords support in the fields of identification of genetic diseases, genealogy certification, avian sexing, etc. There are three main branches of services:
1. Aquaculture: development of plans for family selection, analysis of kinship, selection assisted by scoreboards, chromosomal manipulation (triploids, gamogenetic, food traceability).
2. Genetics for conservation: evaluation of genetic resources of interest or on the verge of extinction, monitoring of re-populations, advice for the management and conservation of species.
3) Sequentiality and analysis of DNA fragments, development of molecular scoreboards (RFLPs, micro-satellites, SNPs) and genomic tools (gen cellar, bio-computerisation, genetic maps, microarrays), analysis of information in evolutionary genetics (phylogeny, population structure).

Hygiene, Inspection and Food Control Laboratory (LHICA): It deals with everything related to food control. The work done at LHICA is divided into two clearly differentiated parts. On one hand it offers services in analysis to outside bodies of the university, Research & Development services, as well as specialised and technical advice for companies and institutions. On another, it serves as a research centre for the personnel that carry out projects, doctoral theses, etc

Parasitic Diseases Diagnostic Service: A parasitic diseases service is offered here. In the Parasitology and Parasitic Diseases laboratory an image diagnosis system is used (optical and fluorescent microscopy) to visualize parasitic forms in faecal and entire blood samples. Different parasitic diseases are detected by means of immune-enzyme technologies, with the use of animal serum and purified antigens in liquid chromatography system (FPLC) and a spectrophotometer. New equipment for flow cytometry and immune-histochemistry have been incorporated for the follow-up of lymphocyte populations in parasitised animals, as well as PCR for the detection of parasite DNA in faeces and blood of infected animals.

Pathological Anatomy Diagnostic Service: Pathological diagnose on biopsies and cytology is performed, as is necropsy and histopathological studies. Special stains, immunohistochemistry, Transmission or Scanning Electron Microscopy and *in situ* hybridisation techniques are routinely used to complete histopathological studies.

Drug Awareness Service: The drug awareness programme includes a whole series of activities oriented to knowing about and permanently evaluating the efficiency and the safety of the drugs used at the VTH in collaboration with the Department of Pharmacology in the Veterinary Faculty. This Service compiles the adverse reactions that can be produced in animals and human beings, in relation to the use of veterinary drugs under normal conditions of use, as well as any other information related to the lack of expected efficiency, misuse of medicines, research on the validity of waiting times, and possible environmental problems derived from the use of veterinary medicines.

Service of Information on Medicinal Residue in Food (Sirfa): This free service, provided by the VTH in collaboration with the Department of Pharmacology at the Veterinary Faculty, offers information on the prevention of residues in animal products. It has an updated database on Veterinary Medicine, and medicinal residues in food (eggs, meat, milk, etc.). This information includes both the pharmacological aspects and those related to current legislation. Sirfa's objective is to provide precise information for the Veterinarian so as to establish necessary waiting times depending on the animal species, the type of drug and the dose used, and the pathology or the type of accidental pollution. It also provides the Veterinarian with information about maximum limits of medicinal residues and toxins in different animal products.

Toxicological Veterinary Attention Service (SATve): SATve provides a technical and scientific tool to assist both the veterinary practitioners and the general population in solving toxicological problems as it helps to establish correct diagnosis and treatment. It is really two services combined into one: An information and toxicological advice service—using a computer specific programme and a laboratorial analysis service. Both services are operative all year round; access to them is available through the VTH and the Department of Toxicology at the Faculty. In the area of laboratory analysis, it proposes the methodology and analytical set of instruments to put a wide spectrum of xenobiotics in evidence, such as: heavy metals (Pb, Cd, Hg …), pesticides (rodenticides, insecticides, herbicidals), drugs (phenobarbitone, ibuprofen), and environmental pollutants (nitrites, nitrates, cationic detergents), etc.

Veterinary Diagnostic Laboratory for Infectious Diseases: It gives diagnostic support in the field of infectious diseases, mainly in livestock. The laboratory has all the basic equipment necessary to perform routine tasks of diagnosis (flow hoods, ELISA reader and washer, PCR equipment, etc.).

Veterinary Teaching Hospital Laboratory Service: The VTH has its own clinical laboratory in which the analyses for the hospital patients are carried out as well as those for samples brought in by other clinicians. This service is managed by VTH personnel.

It has diverse, easy-to-use equipment which provide fast haematological and biochemical identifications for the emergency service, especially at night. Analyses more frequently performed in the clinical laboratory are: biochemical, and haematological analysis including metabolites, enzymes, ions, hormones, etc and some serological, bacteriological, mycological and parasitological tests for small and large animals. In addition to the basic laboratory equipment, the diagnostic laboratory is equipped with an automated haematological analyser (laser technology), biochemical analyser, microscopes, refractometer, electrolytes analyser, gas analyser, electrophoresis equipment, spectrophotometer, coagulometer, flow hoods, stove for bacterial and fungal cultures in urine and hair samples. The samples that cannot be processed in the VTH laboratory are sent every day to external laboratories. The tests most frequently needed are: allergy tests, bacteriological cultures, serological test (antibodies determination).

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

The six services listed below are included in the VTH structure so as to support the correct functioning of the clinical services:

ANAESTHESIOLOGY

This service carries out sedations and anaesthetic procedures required by the VTH'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 seven devices for gas anaesthesia with their corresponding monitoring systems (capnography, ECG, non-invasive pressure and pulsioximetry). The anaesthesiology service is integrated into the surgery service and provides assistance in the VTH from 9 a.m. to 2 p.m. (when the consultation service is open) as well as upon request in an emergency.

DIAGNOSTIC IMAGING

This service works to provide ultrasound and radiological diagnostics for VTH patients, but it also receives referrals from other Veterinary practices. It is open all day, and fully staffed during the time that the VTH is open for consultation 9 a.m. to 2 p.m. Cases programmed by appointment, hospitalised patients and emergency cases may use the service at any time, as the Residents are here all day doing assistant labouring and training.

Out of this schedule also attends those cases programmed by appointment, the hospitalized patients and the emergencies. The Residents stay at the Service all day long, doing assistant labouring and training.

RADIOLOGY: RADIOGRAPHY and RADIOSCOPY

Unit 1: Unit 1 has a remote-controlled PHILIPS exploration table, model DIAGNOST 90S, equipped with a programmable seriator (used to see various images at the same time). It also has an image intensifier with a television system and video monitor. It is used for radiological studies in small animals.

Unit 2: This one hangs from the roof by means of a PHILIPS system CS 64, allowing for full 360 degree rotations, vertical (150 cm) and transverse movement (322 cm). It is used for X-ray studies in large animals.

Units 1 and 2 have a PHILIPS generator, SUPER model 80 CP, which allows for a maximum tension of 150 kVp and a maximum intensity of 1000 mA.

Unit 3: This is a dental X-ray device (TROPHY RADIOLOGIE, model ORAMATIC 708 G). Its generator allows for a maximum tension of 70 kVp and a maximum intensity of 8 mA.

Unit 4: This is a portable unit, (SOYEE, model SY 31 100P). Its generator allows for a maximum tension of 100 kV and a maximum intensity of 10 mA.

The service has two Radiology Rooms (one for small and one for large animals), which are completely isolated to comply with current legislation. There is an automatic x-ray film developer It is remarkable that this service was 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 licensed Director of Radiodiagnostic Devices. All staff members are certified as Radiodiagnostic Device Operators, as well as the majority of the VTH interns/residents. The facilities and devices are inspected by the assigned Radiological Protection Technical Unit (*Unidad Técnica de Protección Radiológica,* UTPR), on an annual basis. When these rooms are used, the owners and/or other potential users are warned about the effects of the radiation.

COMPUTERIZED TOMOGRAPHY SCAN (CT): A computerised, General Electric, "CT GRAZES" model. Its generator allows for a maximum tension of 140 kV and a maximum intensity of 220 mA. It is used for making tomographic studies in small animals.

ULTRASOUND SCAN DEVICES:

(1) Ultrasound scanner, echo-doppler color, ESAOTE MYLAB 70. One sectorial, one lineal and two phase array multi-frequency probes of 5,5 - 7,5 MHz and 2 - 2,5 MH.

(2) Ultrasound scanner, echo-doppler color, HEWLETT PACKARD, model SONOS 1000. Two phase array sectorial multifrequency Probes.

(3) Portable ultrasound scanner ALOKA, model SSD 500. One sectorial and one lineal multi-frequency probe.

VIDEOENDOSCOPY: Fuji system.

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

6.6: SLAUGHTERHOUSE FACILITIES

The Faculty has agreements with 7 private slaughterhouses in Galicia (Novafrigsa, Frigolouro, and Santa Cruz from Coren S.C.L., Frilea, Frimiño, Mafrilemos, M.F. Montellos S.A.) and with Lugo's Municipal Slaughterhouse to perform practical classes in food safety.

NOVAFRIGSA is the main slaughterhouse where *Food Hygiene and Inspection* practice sessions are done. It is a general slaughterhouse with a complete sanitary bovine line of sacrifice, and a partial line for pigs, refrigerating rooms for carcasses, rooms for Veterinary Services, a prepartation room and post-proccesing industry. Rooms are adequate in terms of size and services. Sacrifice and other activity is performed on a good hygienic level. It is about 9 km away from the Veterinary Faculty. Daily sacrifice activity of adult bovines and calves is at around 200 to 250 cows per day and an average of 30-50 calves per day.

Slaughterhouses for poultry (COREN). This food company has 3 slaughterhouses, 1 for turkeys and 2 for chickens. Each of these has rooms for manual and automatic evisceration rooms for post-processing, a white room, and a distribution platform. They are some 110 km away from the Veterinary faculty. Their daily processing includes the sacrifice of around 10,000 turkeys and 150,000 chickens of diverse categories.

The FRILEA slaughterhouse sacrifices bovines and pigs. It is located about 18 km away from the Veterinary Faculty. Their activity includes: 40-50 pigs per day and 50 bovines per day. It has a preparation room and packing room for daily sacrifices.

As the conditions of the agreements with these slaughterhouses indicate, they allow for the students' attendance during the entire sacrifice and inspection process. Students visit the slaughterhouse premises in small groups, supervised by the Official Veterinary Inspectors. These are mandatory practical classes for the subject: Food Hygiene and Inspection.

In addition to this *in situ* practical class for the students, the NOVAFRIGSA slaughterhouse also provides materials (meat pieces, offal, parts of animals) for the practical teaching in *Pathological Anatomy*, *Anatomy* and other subjects taught at the Faculty.

Furthermore, the Faculty has also signed agreements with the abovementioned slaughterhouses and establishments to allow students to carry out one week of rotatory work in the core subject *Obligatory extramural fieldwork* (*Estancias*).

6.7: FOODSTUFF PROCESSING UNIT

Foodstuff Processing Unit
Describe briefly any access that the establishment has to foodstuff processing units.

Food technology practical sessions with raw and heat-treated milk and milk products (yogurt, cheeses, butter, and cream) are performed in the USC's Dairy Room and Pilot Plant (*Aula de Productos Lácteo*s) located on the Lugo Campus. It is very completely equipped with the machinery commonly used in the dairy industry including a pasteurizer, facilities to produce cheese, a tetra-brik packaging machine, etc. These facilities are also used for research and development in collaboration with food industries. Students in *Food Science Technology* also practice by visiting other food procesing plants and industries.

The subject *Food Hygiene and Inspection* has access to the following foodstuff processing units: Factories of LARSA, RAM, Celeiro's Fish warehouse, Riveira's Fish warehouse, NAIL frozen food company. They are contacts on a personal level or by means of a certain research cooperation. Moreover, an agreement with the PULEVA Company, a milk and dairy processing plant located in Nadela-Lugo, 5 kms away from the Faculty, allows the visiting students to learn *in situ* how the different systems related with food quality are carried out by the company.

6.8: WASTE MANAGEMENT

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

The carcasses, organs and cadavers coming from the hospital, dissection and surgery laboratories, necropsy room, etc, as well as those coming from research laboratories, are collected and destroyed by incineration. The Veterinary Faculty has its own incinerator. A freezing room is available in the necropsy area of the hospital for the interim storage of these materials. Refrigerated and freezing rooms are also available for this purpose in *Anatomy* and *Pathological Anatomy*. The Faculty has a vehicle equipped and authorized for the internal transport of such waste materials.

Sharp and contaminated instruments like pipette tips, blades, needles or syringes are introduced in special sharps collector containers that are sealed, temporarily stored in each Department, and periodically collected by a certified company for their destruction.

Chemical toxic and hazardous waste produced by research, diagnostic and teaching laboratories are collected separately in appropriately labelled containers (acid and

alkaline substances, halogenated solvents, non-halogenated solvents, ethidium bromide, and others). They are also temporarily stored in each Department. In addition, there are special containers for the collection and recycling of batteries, paper, toner, glass and plastic. A special service for computer related waste management was also developed.

One of the USC's central services (the Unit of Waste Management) is in charge of the management and destruction of the residues temporarily stored in the Departments, according to UE standards; this Unit periodically collects the sealed containers for their appropriate disposal. The service manages the dangerous residues proceeding from educational and research activities done on all three USC Campuses in an appropriate manner that complies with current legislation. The Unit of Waste Management also develops environmental plans of action destined to the conservation of the environment and also to enhance the quality of life at the USC.

6.9: FUTURE CHANGES

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.

Regarding facilities, the following strengths and weaknesses are recognised:

Strengths

- Variety of services and facilities in the Faculty building or close to it.
- Sufficient number of lecture rooms with large capacity.
- Sufficient number of laboratories for practical work.

Weaknesses

- Not enough space available at the VTH (crowded consultation rooms, accumulation of students working in different clinical cases in the same facilities, waiting time for using some equipment, i.e. x-rays, etc.)
- Some laboratories need remodelling and/or the improvement of certain work conditions (air conditioning, fume hoods).
- Not enough well-equipped rooms in which students can carry out unsupervised work.

One of the goals of the VTH for the near future is the acquisition of a MRI diagnostic device. This new Diagnostic Service will undoubtedly receive many referrals (for both small and large animals) since currently there are only 3 MRI machines operative in veterinary hospitals in Spain. This proposal is in a project- phase and still has to be presented to the "*Rof-Codina*" Foundation Board for approval.

A new VTH Radiotherapy Service with a Cobalt treatment machine will be opened on the Santiago Campus. The USC will be taking advantage of the machine that the old Medical Hospital has decided to leave in place instead of transferring it to its new location. This Service will also receive many small animal referrals since there is only one machine operating in Spain. It will be run by VTH staff and personnel from the

Physics Faculty and students from both degrees will attend practical classes there. The USC approved and budgeted this project to begin in the academic year 2008-2009.

Another goal of our Faculty is the project to convert the *Gaioso-Castro* Municipal Government Farm in Lugo into a USC teaching farm; this will ensure accessibility for all students and guarantee state-of-art production methods with the highest bio-security measures. This is still in a project-phase and will have to be proposed to the corresponding authorities.

Along other lines, the remodelling of the Central Pavilion would allow for a better design in the Computer rooms, the Exposition room and the Reading room. The USC budgeted and approved this project so that it would be finished in 2009.

Finally, some other improvements included here should be finished at the time of the visit:

- The remodelling and refurbishment of two multidisciplinary laboratories and two seminar rooms in Pavilion II.
- Installation of a portable digital videoconference connection between the VTH facilities and the classroom Pavilion so that clinical cases may be used during lectures.

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 Faculty and VTH buildings and laboratories are very adequate for undergraduate teaching, as well as for all research and medical assistance undertaken by the teaching staff and the students attending the Faculty. However, the characteristics of the Faculty buildings cause very high indoor temperatures during the summer, and because of funding shortages not all the facilities are adequately conditioned. The budget that the Faculty gets for building and equipment maintenance is very meagre (see Chapter 3). As a consequence, funding from research projects must frequently be drained away for that purpose.

The Faculty equipment could be considered high-quality, but there is a significant difference in the equipment used specifically for teaching and the equipment used for research. In most cases, the latter has been obtained with much painstaking effort on part of the teaching staff according to the needs of their own research projects, and in many cases, due to their personal requests for supplies and installations. In this sense, the research equipment can be termed excellent. On the other hand, the equipment devoted to practical teaching is not so complete and does not have the high standards of that used for research. Funding for practical teaching is scarce and although the

University establishes an annual financial support programme for replacing old practical material, the amount of these grants is usually very limited.

Another maintenance problem exists with the digital equipment in classrooms. This equipment (video projectors and computers) has to be replaced frequently because of the fast rate at which digital technology advances. Although all classrooms have video-computer systems, only half of them have up-to-date digital technology. In addition, small rooms for group work are necessary since classrooms are too large.

3. SUGGESTIONS

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

Buildings and facilities

- Remodelling of some lecture rooms to allow for more supervised or unsupervised work in small groups. 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.
- Optimisation of laboratories in terms of space distribution and allocation.
- Our students carry out practical training related to Food Inspection and Technology in several modern and well-equipped Slaughterhouses or Food Industries which ensures high quality training. However, agreements established with these premises are usually based on the good relationship of Faculty members with external colleagues. Receiving (too large a number of) students (on many occasions) may disturb the work at the factory, and industry managers may refuse to maintain this situation for long periods of time. Thus, it would be convenient to formalise this kind of agreement, by signing long-term institutional cooperation agreements with these industries.

Equipment

Regarding the improvements on equipment that may directly or indirectly influence the quality of teaching, our list in order of preference is:

- Renewal and increase of equipment in laboratories and clinical consultations.
- Installation of the air-conditioning system in all buildings.

7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

CHAPTER 7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

1. FACTUAL INFORMATION

In 2003, the USC set up a Bioethics Committee (BC, *Comité de Bioética*), with the main duty of overseeing all scientific and teaching procedures using live vertebrates. The BC is currently made up of eleven members, including seven scientists—two of them Veterinarians—with expertise on animal welfare and/or ethics. The BC has to approve any procedure using live animals or samples from vertebrates before the procedure can be carried out. The BC uses the 3 Rs principle as a framework to assess the ethical acceptability of a procedure. This Bioethics Committee is also in charge of evaluating research projects using animals in the USC.

The Veterinary Faculty has been particularly active in the field of animal welfare. In fact, the VTH has been officially recognised by the Galician Autonomous Government as a Animal Welfare Teaching Centre; three professors are members of the BC; one Veterinarian teacher is in charge of the Sanitary status and Welfare of the laboratory animals for the facilities in Santiago and Lugo Every year the Faculty offers Doctorate Programmes and Postgraduate courses where Animal Welfare is included. The Faculty also offers a subject called *Practices at the Lugo Society for Animal Charity* which accounts for 4 elective credits. Finally, some teachers have created a Group on Animal Welfare.

7.1: BASIC SUBJECTS

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

Bones, viscera and cadavers of the different domestic animals species (dogs, cats, equines, bovines, sheep, poultry, exotic and laboratory animals) are used for the practical anatomy training of the students.

Dog and cats cadavers come from the Lugo Society for Animal Charity which gives us dogs killed for humane reasons. The cadavers of sheep are old animals which have been rejected from farms. The cadavers of foals and calves are animals that died during delivery or due to a pathological non-infectious condition. Viscera of different species are obtained from slaughterhouses. Several other animal products are also sporadically used, such as foetuses 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. Some specimens may be stored in containers with preserving solution for several years. The Anatomy Unit already has a complete collection of bones and skeletons of the different domestic species. This collection is stored next to the dissection room. In addition, students use resin anatomic models in their training.

Pathology (Pathological Anatomy)

TABLE 25. Number of Necropsies Over the Past 3 Years

Species	Number of necropsies		
	2007	2006	2005
Farm/large animals			
Cattle	25	11	10
Equines	2	2	1
Small ruminants	104	94	79
Pigs	100	62	106
Poultry/rabbits	70	48	18
Small/pets			
Dogs	418	442	179
Cats	35	13	13
Other pets (mammals, avian, reptilian)	19	7	5

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.

Cadavers of small animals for necropsy come from the VTH and the Lugo Society for Animal Charity. Moreover, the Faculty has an agreement with Small Animal Clinics in Lugo and its surroundings to provide, with the owners approval and free of charge, the cremation of pets once they are used for practical sessions with the students. Cadavers of large/farm animals come from farms and private practitioners. In this case, the Faculty also offers free transportation and cremation when they are used in practical training with the students. In addition, discarded organs from NOVAFRIGSA slaughterhouse are used in practical classes of *Pathological Anatomy* (necropsy room).

The practical sessions of histopathology are performed on pathological tissues from biopsies or cadavers obtained from the necropsy room, private clinics, practitioners or slaughterhouses.

Some other Basic subjects (namely *Biochemistry, Biology*, *Genetics*, *Histology*, *Microbiology, Immunology*, *Physiology*, *Pharmacology*, *and Toxicology*) 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, for blood, serum, plasma, urine, tissues, exudates, cell suspensions, enzymatic extracts and cell cultures. Those materials are obtained from the necropsy room, VTH clinical cases, slaughterhouses, and kennels or from other sources such as farms, local markets, and animal housings. Laboratory animals are obtained from the breeding facilities at the University. Dogs and cattle from the VTH kennel and barn, respectively, are also employed in the teaching of non-invasive procedures. Storing these materials is accomplished by fixation, refrigeration or freezing techniques, and live animals are always kept in controlled animal housings in the VTH. The Hospital in Lugo also facilitates human serum from patients with zoonoses, to confirm diagnoses that are used in the practical training of the students in the subject *Zoonoses and Public Health*. The core subjects *Ethnology and Ethology* and *Infectious Diseases* use the animals from the *Gaioso Castro* Municipal Government Farm in Lugo; the latter subject also uses animals from dairy cattle farms, horses, fish farms and kennels.

7.2 ANIMAL PRODUCTION

Indicate the availability of production animals for the practical teaching of students
a) On the site of the institution;
b) On other sites to which the institution has access.

1) In the VTH, we have 20-25 cattle permanently available for training purposes. In April, May and June there are also 5-6 horses available on a daily basis.
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/YEAR
ACRUGA Galician Country	Association of *Rubia Gallega* breeders 2,355 Beef cattle, extensive farms Practices of cattle breeding, reproduction and preventive medicine	Beef cattle: 49,638
ADSG ATRUGAL Galician Country	Association of 25 fishing-farms Practices of veterinary control and health programmes in the farming of rainbow trout	Rainbow trout: 7,500 Tons
ADSG Begonte Lugo	Sheep farm Practices of infectious preventive medicine in sheep: serology, blood sampling, analyses and control of Maedi/Visna	Sheep: 300
ADSG Castro de Rei Lugo	Association of 140 Dairy and Beef cattle farms Practices of cattle breeding, reproduction and preventive medicine	Dairy & Beef cattle: 8,500

SITE	ACTIVITY	SPECIES AND NUMBER OF ANIMALS/YEAR
ADSG *Santa Isabel* Outeiro de Rei, Lugo	Association of 100 Dairy cattle farms Practices of infectious preventive medicine in cattle: serology, blood sampling, ear biopsy, trans-tracheal aspiration, milk sampling, analyses and control of IBR, BVD, Johne's disease, *Neospora*, Neonatal diarrhea, Bovine respiratory syndrome.	Dairy cattle: 3,000
ADSG *Vacasán* Chantada, Lugo	Association of 400 Dairy cattle farms Practices of infectious preventive medicine in cattle: serology, blood sampling, ear biopsy, trans-tracheal aspiration, milk sampling, analyses and control of IBR, BVD, Johne's disease, *Neospora*, Neonatal diarrhea, Bovine respiratory syndrome.	Dairy cattle: 12,000
AFRICOR-LUGO Lugo	Association of 2,242 Dairy cattle farms Practices of cattle breeding, reproduction and preventive medicine	Dairy cattle: 98,000
AFRILUGO Lugo	Association of 75 Dairy cattle farms Practices of cattle breeding, reproduction and preventive medicine	Dairy cattle: 4,000 Heifers: 2,000
AGRIS Cooperativa Galega Lugo	Association of 503 Dairy and Beef cattle farms Practices of cattle breeding, reproduction and preventive medicine	Dairy & Beef cattle: 5,000
CASAS NOVAS A Coruña	Horse racetrack and residence Horse international show jumping tour Practices of horse infectious preventive medicine	Horses: Main stables: 60 boxes Show-participants: 173 boxes Riding school: 18 boxes
CENTRO EXPERIMENTAL Mabegondo, A Coruña	Beef cattle and sheep extensive herd Practices in extensive production and hygiene of cattle and sheep	Beef cattle: 300 Sheep: 100
COGAL Galician Country	Association of 250 rabbit and duck farms Practices of rabbit/duck intensive breeding, reproduction, infectious diseases control and preventive medicine	Rabbit mothers: 80,000 Baby rabbits: 4,000,000 Barbery duck: 400,000
COOPERATIVA CHAÍN Lugo	Dairy cattle farm Practices of cattle breeding, reproduction and preventive medicine	Dairy cattle: 450
COREN S.C.L. Galician Country	Food company with producing farms for : poultry (250), Turkey (110), duck (7), pork (300) and Beef cattle (100) Practices of poultry/swine/cattle breeding, reproduction and preventive medicine	Poultry: 40,000,000 Turkey: 3,500,000 Barbery duck: 350,000 Pork grandmothers: 3,500 Mother Sows: 35,000 Fattening pigs: 800,000 Beef cattle: 15,000
COVIGA S.C.G. Galician Country	Association of 35 goat farms Meat and milk production	Goat mothers: 10,000 Baby goats: 5,500
CHARÉN Nadela, Lugo	Dairy cattle farm Practices of bio-security and risk factors of mastitis	Dairy cattle: 150
EQUUS A Vila-Rubiás,Lugo	Horse racetrack and residence Practices of preventive medicine in horses	Horses: 25 boxes
GARATUXA Lugo	Private Kennel Infectious preventive medicine in dogs	Dogs: 47 kennels

SITE	ACTIVITY	SPECIES AND NUMBER OF ANIMALS/YEAR
GRANXA BONXE S.L. Lugo	Swine closed-cycled farm Practices of swine breeding, reproduction and preventive medicine. Dead pigs are used in practices of necropsy with the students	Mother Sows: 350 Fattening pigs: 1,500
Provincial Government of Lugo's farm "*Gaioso Castro*" Castro de Rei, Lugo	Protection and reproduction activities of cattle, ovine, swine and poultry native breeds. Students acquire knowledge in farm keeping, animal care and disease management, and basic knowledge in ethnology and animal production systems	Dairy cattle: 195 Beef cattle: 12 Galician sheep: 31 Galician swine: 3 sows Galician Fowl: 7
NOVAFRIGSA, S.L. Lugo	Slaughterhouse *Ante-mortem* practices in obstetrics Practices *in situ* in Food Hygiene and Inspection. Discarded organs are used in practices at the necropsy room	Cattle: 200-250/day Calves: 30-50/day
NUDESA, S.A. Lalín, Pontevedra	Food company with feed plants and swine closed-cycled farms Practices of swine breeding, reproduction and preventive medicine	Pork grandmothers: 400 Mother Sows: 6,350 Beef cattle: 200
NUTRAL Sarria, Lugo	2 farms of broiler chicken Poultry infectious preventive medicine	Broiler chickens: 36,000
OVICA Galician country	Association of 222 sheep and goat farms Meat and milk production. Dead animals are used in practices of necropsy with the students	Sheep: 36,752 Goats: 6,642
PAZO DE FONTEFIZ Ourense	Galician centre for autochthonous breeds Practices of Animal Production	Beef cattle: 153 Galician sheep: 15 Galician Fowl: 100 Galician swine: 10 Galician Horses: 3
PRIVATE FARM Calde, Lugo	Dairy cattle farm Practices in cattle sanitary policy and design of a programme of preventive medicine.	Dairy cattle: 60 Heifers: 40
RANCHO GRANDE Lugo	Horse resort & residence Horse infectious preventive medicine	Horses: 20 boxes
SAT *A Valiña* Portomarín, Lugo	Intensive Dairy goat farm Meat and milk production	Milking goats: 2,000 Male goats: 50
SAT *Villamayor de Negral* Guntín de Pallares, Lugo	Dairy cattle farm Practices of cattle breeding, reproduction and preventive medicine	Dairy cattle: 290
SERAGRO Lugo	Association of Veterinarians working with Dairy cattle Practices of cattle breeding, reproduction and preventive medicine	Dairy cattle: 60,000
SOCIETY FOR ANIMAL CHARITY, Lugo	Kennel Dog preventive medicine. Dead or sacrificed dogs are used in practices of necropsy	Dogs: 400
TERNERA GALLEGA Galician Country	Association for the control and promotion of *Rubia Gallega* Beef cattle	Beef cattle: 106,638
XENÉTICA FONTAO Lugo	Galician centre for animal selection and artificial insemination Practices of Cattle breeding and health	Selected bulls: 300

c) Moreover, the VTH has 20 agreements with external farms to perform clinical practice on livestock animals through the mobile clinic; in addition the VTH recently contracted seven private practitioners that work with cattle and horses to perform practical sessions on medicine and surgery to some 50 sick animals which are available each week:

SITE	ACTIVITY	SPECIES AND NUMBER OF ANIMALS/YEAR
Emilio Pereira A Coruña	Sheep farm	Sheep: 25
Granxa Escola Barreiros Ortoá-Sarria-Lugo	Mixed school farm	Beef cattle: 2 Sheep: 120 Sows: 30
Hilario Núñez Soto Torés-Becerreá-Lugo	Beef cattle farm	Beef cattle: 55
Isaura González Fernández S. Mamede da Agüela-Antas-Lugo	Beef cattle farm	Beef cattle: 32
Javier Fente Fente Cibreiro-Antas-Lugo	Beef cattle farm	Beef cattle: 35
José Ares Zas Lousado-Friol-Lugo	Beef cattle farm	Beef cattle: 38
José Luis Neira Valín San Vicente do Burgo, Lugo	Dairy cattle farm	Dairy cattle: 85
José López Díaz Xiá-Friol-Lugo	Dairy cattle farm	Dairy cattle: 90
José Manuel Morandeira Pacios Vilapedre-Friol-Lugo	Beef cattle farm	Beef cattle: 70
Juan Pérez Castro Freixo-Triacastela-Lugo	Beef cattle farm	Beef cattle: 45
Julia Corral Cabado Prado-Friol, Lugo	Dairy cattle farm Beef cattle farm	Dairy cattle: 75 Beef cattle: 60
Mª Balbanera Devesa Covas Tralacorda-Friol-Lugo Pardellas-Friol-Lugo	2 Beef cattle farms	Beef cattle: 78 Goats: 12
Marina Andrade Seijas Antas-Lugo	Beef cattle farm	Beef cattle: 20
Manuel Sánchez Díaz Rubián da Cima-O Incio-Lugo	Dairy cattle farm	Dairy cattle: 60
Olegario Cuñarro Vilameá Faílde-Rodeiro-Pontevedra	Beef cattle farm	Beef cattle: 30
Perfecto Doutón López Xiá-Friol-Lugo	Beef cattle farm	Beef cattle: 65
SAT *Villamayor de Negral* Guntín de Pallares, Lugo	Dairy cattle farm	Dairy cattle: 290
Servando Vázquez Pena Pradeda-Guntín-Lugo	Beef cattle farm	Beef cattle: 35
Viuda Ricardo Pérez Rosón Riomol – Castroverde, Lugo	Beef cattle farm	Beef cattle: 59
XENÉTICA FONTAO Lugo	Galician Centre for Animal Selection (genetics) and Artificial Insemination	Selected bulls: 300

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 in these subjects is done on the Faculty premises: laboratories of Food Hygiene and Inspection (Lhica) and Food Technology (Department of Nutrition and Bromatology). The practical work includes handling of products of animal origin like raw meat (pork, beef, chicken), meat products (cured sausages, spiced meat, cooked products), eggs, fish and shellfish, among others. All these products come from slaughterhouses, certified farms or food stores.

- Practices with raw and heat-treated milk and milk products (yogurt, cheeses, butter, and cream) are performed in the USC Pilot Plant for Dairy Products ("*Aula de Produtos Lácteos"*) located on the Lugo Campus.

- In addition, students carry out practical work in slaughterhouses, food industries, and fish warehouses (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 VTH is open 24 hours a day year round. Consultations are open from Monday to Friday for appointments. The current time schedule for consultations is from 9 a.m. to 2 p.m. (see the detailed timetable—Table 26—for each service below). The rest of the day and on weekends the emergency services are open (24/7) with 1 student from Surgery and 1 student from Medicine attending.

TABLE 26. Timetable for VTH Services for appointments

SMALL ANIMALS	
Internal Medicine	
Dermatology	Monday to Friday, 9 AM to 2 PM
Cardiology	Monday to Friday, 9 AM to 2 PM
Neurology	Monday to Friday, 9 AM to 2 PM
Gastroenterology	Monday to Friday, 9 AM to 2 PM
Nephrology	Monday to Friday, 9 AM to 2 PM
Surgery	
Traumatology	Monday to Friday, 9 AM to 2 PM
Ophthalmology	Monday to Friday, 9 AM to 2 PM
Odontology	Monday to Friday, 9 AM to 2 PM
Exotics	Monday to Friday, 9 AM to 2 PM
Anaesthesia	24 hours on call
Clinical laboratory	Monday to Friday, 9 AM to 7 PM
Imaging Diagnosis	Monday to Friday, 9 AM to 7 PM
Pathological Anatomy	Monday to Friday, 12 AM to 3 PM
Pharmacy	Monday to Friday, 9 AM to 2 PM
Reproduction	Monday, Wednesday and Friday, 10 AM to 1 PM
LARGE ANIMALS	
Livestock	Monday to Friday, 9 AM to 3 PM
Equines	Monday to Friday, 9 AM to 3 PM
Food Safety Service (Sirfa)	Upon request
Toxicology (SATVe)	Upon request

The VTH activities are divided in three main areas:

- **Small Animal Area:** including all clinical activities related with dogs, cats and exotic pets (see table 26).
- **Large Animal Area:** including the equine, ruminants and porcine clinics (see table 26).
- **Central Services Area:** including all clinical support Services in the VTH, affording Service to both the Small and the Large Animal Area: Anaesthesiology, Clinical Laboratory, Imaging Diagnose, Pathological Anatomy, Pharmacy, Reproduction, Food Safety (Sirfa, to analyse meat or milk residues) and Toxicology (SATVe) (see 6.5 for further information).

TABLE 27. Number of Animals Received for Consultation in the Past 3 Years

Species	Number of patients		
	2007	2006	2005
Farm/large animals (1)			
Cattle	53	67	42
Equines	342	275	190
Small ruminants	-	-	-
Pigs	-	-	-
TOTAL	**395**	**342**	**232**
Small/pets			
Dogs	9,632	7,563	6,811
Cats	1,034	945	718
TOTAL	**10,666**	**8,508**	**7,529**
Exotics			
Rabbits	43	51	36
Birds	218	242	219
Reptiles	41	36	40
Others (2)	12	20	7
Wild animals	102	103	129
TOTAL	**416**	**452**	**431**

(1) Due to the special characteristics of the Large Animals clinic, most of the cattle, swine and small ruminant patients are not seen in the VTH's facilities, they are visited by means of the Mobile Clinic Service, or are hospitalised and therefore included in Table 28. In the case of Horses, they are treated mainly in the VTH and, if necessary, are hospitalised (see Table 28).
(2) Small mammals and rodents.

7.5: HOSPITALISATION

TABLE 28. Patients Hospitalised in the Clinics in the Past 3 Years

Species	Number of patients		
	2007	2006	2005
Farm/large animals			
Cattle	4	48	37
Equines	216	184	159
Small ruminants	1	70	70
Pigs	136	-	-
TOTAL	**357**	**302**	**266**
Small/pets			
Dogs	2,195	1,418	1,938
Cats	279	253	214
Exotics	56	124	63
TOTAL	**2,530**	**1,795**	**2,215**

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.

There is a large trailer to bring sick horses or cattle to the VTH. A van is lent to the animal owners if necessary. Clients are charged for this service except in those cases of special teaching or scientific interest; in these cases, the Faculty assumes the transportation costs. Also a small trailer is used for transportation of small animals.

In addition, one of the vehicles belonging to the Faculty is used exclusively to bring cadavers or slaughterhouse materials for teaching purposes. The client is not charged for this service.

Outline what in-house emergency service is available.

7.7: EMERGENCY SERVICE

As described before, there is an emergency VTH service permanently available throughout the year. There is always one Medical clinician, one Surgeon and one Anaesthesiologist on call.

LARGE ANIMAL EMERGENCIES

– The VTH Emergency Service receives equine and livestock medical and surgical emergencies 24/7, 365 days per year. The Staff on-duty receives the emergency phone call and, normally goes as soon as possible to the farm (only horse emergencies are resolved in the VTH); if necessary, the rest of the clinical team is called in. There are 3 Hospital Associate Professors (PACS) and 3 Residents to attend to this service. On night duty and weekends the VTH has 1 PACS on call and one Resident.

SMALL ANIMAL EMERGENCIES

– In the Small Animal Area, the Emergency Service receives pet medical and surgical emergencies 24/7, 365 days per year. The Staff on-duty is responsible for receiving emergencies. After evaluating the patient, they call in the emergency Surgeon/Anaesthetist/Specialist if necessary. There are 7 Hospital Associate Professors (PACS) and 14 Residents to attend to this service. On night duty and weekends the VTH has 1 PACS on call, 2 Residents and 2 students sleeping in the Hospital.

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 made by the mobile clinic to farms and studs for cattle, swine, equine, poultry, small ruminants, others.

Students do Mobile Clinic activities in their 4th and 5th years. Professors from the Departments of Veterinary Clinical Sciences and Animal Pathology, as well as some Practitioners contracted by the VTH, are responsible for the Mobile Clinic. After-hours emergency services were explained in 7.7.

The transport to these Mobile Clinic activities is provided with vehicles from the Faculty: (Renault Master, 9 seats) and the VTH: Ford Explorer (5 seats), Mazda Pick-up (5 seats), Mercedes van (6 seats), Hyundai (5 seats). To carry out work in the Mobile Clinic Practitioners use their own private vehicles (7 cars) with 1 seat available for students. When necessary, students' transport is contracted by the Faculty, (small buses for groups of 10 students), i.e. to attend practical sessions in *Veterinary Sanitary Policy and Preventive Medicine.*

There are a total of 8 Teachers and 7 contracted Practitioners participating in the Mobile Clinic, who provide a total of 120 hours of Service per week (52 weeks/year).

The number of animals and farms visited in the academic year 2007-08 is shown in Table 29.

TABLE 29. Animals and Farms Visited by the Mobile Clinic

Approximate number of sick animals visited/year		Average number of visits to farm or studs/year	
Equines	72	Equines	80
Cattle	2,454	Cattle	1,010
Small ruminants	148	Small ruminants	20
Porcine	10	Porcine	8
TOTAL	**2,684**	**TOTAL**	**1,118**

In Table 29, the clinical cases from the seven private Practitioners recently contracted by the VTH that work with 1 student/Practitioner (6 Practitioners/week) have not been included. However, this volume amounts to some 50 new clinical cases in farm animals per week.

7.9: OTHER INFORMATION

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

There are agreements between the Faculty, the VTH and the Lugo Society for Animal Charity for the protection of abandoned dogs and cats. Within this frame, animals abandoned in Lugo area are sent to the Faculty for care and neutering before being given in adoption or returned to the society. Students are involved in these activities which provide them with additional surgery training (5 neutering/week). Moreover, the VTH has signed an agreement with the Galician Ministry of the Environment to provide clinical support to the Galician Association of Societies for Animal Charity and to a Wildlife Rescue Centre ("*O Veral*") in Lugo; students actively participate in clinical cases on dermatology, orthopaedics, bite wounds, newborn diseases as well as treatment and control of infectious diseases. In addition, the core subject *Obstetrics* & *Reproduction* uses cows awaiting sacrifice (150cattle/week) at the NOVAFRIGSA slaughterhouse in Lugo for student practise.

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.

The VTH has high quality equipment that, considered as a whole, is well above the average Spanish Veterinary Hospital and superior to most of those belonging to private centres in the area. The VTH has many spacious, well-designed and well-equipped rooms to be able to manage patients of different species. In general, the VTH is well-provisioned with large diagnostic and treatment devices (radiology, ultrasound, echocardiography, endoscopy, surgical microscopes, anaesthetic appliances, dental equipment, diagnostic laboratory equipment, arthroscopy, etc.). In the near future, we see digitalization of radiographies and acquisition of a Magnetic Resonance device as some of the priorities we have to improve clinical assistance.

The timetable for large animals is optimal, because the Emergency Service guarantees attention 24/7, every day of the year. In the Equine Unit, Internal Medicine and the Surgery Service schedule their patients from 9 AM to 3 PM every day. These services also enter into an emergency rotation. There is always a specialist from both services on duty, as well as an Anaesthesiologist.

The timetable for small animals is different and a bit more limited than that of some private centres. The VTH only admits out-patients Monday to Friday, from 9 AM to 2 PM. During the rest of the day and at weekends, animals coming to the VTH can be admitted through the Emergency Service. This timetable is limited when compared to what most private Small Animal centres offer. The lack of personnel, both clinical and support staff, within the VTH's different Services does not allow us to extend it for the time being. Nevertheless, the caseload is sufficient to provide adequate practical training for our students. In contrast, the schedule and the emergency service of the VTH are quite extensive when compared to other private or public centres.

The VTH Staff has a high level of expertise and qualifications that are 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, even though their qualifications are good, only a few of the VTH Clinicians are accredited as specialists through European or American professional organisations. We hope to improve this in the future. The Hospital staff actively participates in Postgraduate Internship Programmes of specialisation in large and small animal clinical and Continuing Education courses for Veterinarians and Physicians.

For all areas, VTH Clinicians are members of the respective professional associations (AVEPA: Small Animal Specialists Veterinary Association, ANEMBE: National Association of Bovine Specialists, SEMIV: Spanish Association of Specialists in

Veterinary Medicine, SECIVE: Spanish Association of Veterinary Surgeons, SEOVE: Spanish Association of Veterinary Odontologists, AEVEE: Spanish Association of Equine Veterinarians). They actively collaborate in these organisations. Some occupy posts on their boards, scientific committees, or referee groups for publications and others even act as President of these associations. Furthermore, it is quite usual for these associations to request help from VTH clinicians in giving courses, seminars or lectures in their annual congresses.

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 regards this mix, describe it.

The proportion of referred cases is highly variable depending on the area and the speciality consultations. As a whole, the total percentage of referral cases in the Small Animal Unit is about 42-48%; nevertheless, in the specialised services referral cases reach 70-80% of total consultations (TAC, electroretinography...). 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 small animals, the policy of the establishment is to reach a 75:25 ratio between the referral cases and non-referral cases since we consider that keeping a significant number of first opinion cases (25%) provides valuable material for teaching in the type of cases that our students will face most frequently when they graduate.

The VTH policy is to encourage case referrals. For the Large Animal Mobile Clinic the VTH contracted 7 private Practitioners with a high level of expertise so as to have more referral cases. Clinicians who receive referred cases contact the Vet by phone to inform him/her of diagnose and to agree with the therapeutic protocol. Finally, owners of referred cases are encouraged to go to their clinic for any case follow-up by their Vet.

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.)

The VTH has a broad variety of services covering specialisations in Internal Medicine, Surgery, Anaesthesia, Traumatology, Dermatology, Cardiology, Neurology, Gastroenterology, Nephrology, Ophthalmology, Odontology and Exotic Pet Medicine (see chapter 6). It is open 24/ 7 every day of the year and this includes emergency services. Every service has its own time schedule (see Table 26). Emergency Services (24/7) cover internal medicine, surgery, anaesthesia, traumatology, cardiology, neurology and ophthalmology.

This range of specialties and the integrated/multidisciplinary care offered by the VTH, for both large and small animals, is very satisfactory and better than what most private

centres in the area can offer. Nevertheless, there remain some highly specialised fields that cannot yet be offered due to a shortage of personnel and equipment (e.g. magnetic resonance, radiotherapy, haemodialysis).

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

Fees are decided by the Management Committee of the VTH. As a general policy, fees are set to be at least equal or higher to those on the recommended list of minimum prices, established by the Galician Official Colleges of Veterinarians, which comes out after an annual study of market trends for the various clinical acts.

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 VTH is encouraged to offer both internal and external support to private Practitioners. The VTH has a fluent and good relationship with private large animal Practitioners in the surrounding area and with small animal clinics in the Galician provinces of A Coruña, Ourense, and Pontevedra. Unfortunately, certain conflicts of interest have arisen in recent years between the VTH and some local Small Animal Clinics in Lugo because of the important increase in the number of cases and the fact that 24/7 coverage is offered 365 days a year.

As we have mentioned before, although the proportion of referral cases for small animals is still under 50%, it is commonplace for private Clinicians to contact the VTH's specialty Clinicians by phone or e-mail to ask for advice about their cases. In addition, private clinics frequently make use of the VTH's external Services (Pathological Anatomy, Clinical laboratory). Private Practitioners also collaborate with the VTH and, as stated before, currently seven external Veterinarians participate in the Mobile Clinic. Moreover, the VTH is open to receive any private Practitioner willing to improve or to learn specific techniques. Such admission is subject to availability.

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).

We have many agreements with outside bodies to provide our students further practical training within other clinical subjects like *Pathological Anatomy*; *Infectious Diseases*; *Parasitic Diseases*; *Preventive Veterinary Medicine*; *Obstetrics* & *Reproduction*; *State Veterinary Medicine,*

Zoonoses and Public Health; *Veterinary Clinical Ultrasound Scan*; *Traumatology*, and *Obligatory extramural fieldwork* ("*Estancias*"). These agreements can be consulted in Chapter 5 (see 5.1.4) and further information about the practices is offered in 7.2.

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 in the Reception/Admission area, with two members of administrative support staff, for payments, appointments and records maintenance; after-hours, the Clinicians are in charge of the opening of new records. The first time that a patient comes to the VTH, 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 code. This code allows the location of the client's record in the archive. This same code is used to identify any diagnostic test, from laboratory samples to X-Rays with adhesive labels which include all the owner's and animal's data. The labels are used to complete the forms requesting tests and reduce the likelihood of error when data are reproduced in the different Services. The same code is use throughout the patient's entire life.

Each patient's record is kept in a folder along with handwritten clinical data and reports on the different tests performed. These record envelopes are stored, in numerical order, in the VTH files, which are maintained by Staff in the Reception/Admission area. Dead patient's records are kept in a separate file. Recently, the VTH designed its own database for client and patient information with all the clinical data available so that it can be consulted from any of the VTH computers.

The Reception/Admission area is also in charge of answering phone calls (phone enquiries for clinicians are passed on to each of them), making appointments for the different specialty consultations in person or by telephone, and preparing the patient records for each day's appointments before the consultations begin.

7.10: RATIOS

See the section *'Main Indicators'* in Annex I for the figures needed for calculating ratios. Give the figures for numerators and denominators. The ratios should then be expressed by taking the numerator as 1.

7.10.1: Animals Available for Clinical Work:

Ratio: students/production animals

$$\frac{\text{Number of students graduated in the last year}}{\text{Number of production animals}} = \frac{104}{3{,}436} = \mathbf{\frac{1}{33.04}}$$

Ratio: students/companion animals

$$\frac{\text{Number of students graduated in the last year}}{\text{Number of companion animals}} = \frac{104}{13{,}612} = \mathbf{\frac{1}{130.88}}$$

7.10.2: Animals Available for Necropsy:

Ratio: students/post-mortem examinations

$$\frac{\text{Number of students graduated in the last year}}{\text{Number of cadavers necropsied}} = \frac{104}{773} = \mathbf{\frac{1}{7.43}}$$

2. COMMENTS

Feel free to comment on all data provided in this Chapter.
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.

With regards to the VTH, major developments expected to occur in the future are:

- Improving the operation of the Imaging Diagnostic Service through the application of digital radiography.
- The upcoming opening of an MRI Service at the VTH which will surely increase the number of referrals, both in large and small animals. Moreover, the referrals for cataract surgery will increase with the recent acquisition of a microscope and phacoemulsification device for the ophthalmology service.
- A recently signed agreement with the Equine Federation of Raid Horses that will surely increase the equine caseload.
- A new computer network is expected to improve information management in the Administrative and Clinical areas of the VTH.

- The VTH is developing its own 2 year-internship for the near future to grant a diploma recognised by the USC as a previous step for postgraduates to become Diplomates.
- To improve the Emergency care the VTH will contract 3 or 4 of the Interns that have finished their internship to attend exclusively to this service. The Senior Interns will be responsible for taking care of hospital in-patients overnight, under the direction of senior colleagues (on call), for answering emergency calls from first-opinion clients, for triage cases arising from such calls, for arranging for appropriate treatment, and for instructing veterinary undergraduates who are assigned to hospital duties.

With regard to other clinical activities:

- Although we have a satisfactory ratio for livestock clinical teaching, taking into account that Galicia is one of the most important livestock regions in Spain, we see that more mobile clinic activities for farm animals are needed,. The Faculty lacks its own teaching farm so we must develop clinical training with livestock through the agreements with outside producers. At the moment, the Faculty is currently talking with several livestock producers in order to reach new agreements in the near future.

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 these ratios?

- The necropsy ratio falls within the satisfactory range. The number of companion animal necropsies seems adequate, but it would be recommendable to increase necropsies from cattle and horses. However, this is not easy: bio-security regulations related with BSE make it difficult to bring bovine cadavers to the Faculty, and the scarce number of horses in the vicinity of Lugo raises transportation costs that have to be charged to the owners.
- Although the ratios for production animals in 7.10.1 are satisfactory, we are aware that the number of available livestock is not optimal; as stated before, we are trying to organise new agreements with external farms/ facilities, where students will be able to carry out additional hands-on practice with different species of production animals. In addition, the caseload of the livestock mobile clinic will substantially increase this academic year with the hiring of 7 private Practitioners by the VTH.

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

8.1: LIBRARY

8.1.1. Main Library

The Library of the Veterinary Faculty is part of the USC's central library on the Lugo Campus (BUSC, *Biblioteca da Universidade de Santiago de Compostela*). This inter-centre library centralises the bibliographical collection of several Centres: the Veterinary Faculty, the Higher Polytechnic Agricultural School (EPS), the Business Faculty, the Science Faculty and the Humanities Faculty. Thus, the librarians working there are responsible for providing services for our students (undergraduate and postgraduate), professors, support staff, and researchers who study and work in our centre, and also to all veterinary professionals who collaborate with the Veterinary Faculty in educational activities (e.g. Practitioners acting as professional tutors in the core subject *Obligatory extramural fieldwork*).

The BUSC is housed in a building inaugurated in 1997; it occupies a total area of 10.000 m^2 and is divided into two clearly differentiated sections:

- A circular area with 4 floors (3,476.4 m^2) which houses all the library resources for the Scientific/Technical subjects.
- A rectangular area with 2 floors (2,377.3 m^2) dedicated to the areas of the Humanities and Social Sciences.

Certain general information about the BUSC is listed below:

- 1,615 reading places.
- 4,426 m of bookcases.
- 15 Computers (PCs), 8 printers and 1 scanner for internal use.
- 30 PCs for public use.
- WIFI connection for Internet in the entire whole building
- 5 photocopiers for public use and 3 for internal use.
- 4 televisions with videos.
- More than 80,000 books and monographs.

– 571 titles of periodic publications in opened printed format.
– 813 titles of periodic publications in closed printed format.

Information about access provided for electronic journals could be consulted in the BUSC webpage: http://busc.usc.es/A_BUSC_dixital/revistas1.asp. Entrance to the library is open to all and the services are free for USC students, staff and collaborators. On each floor of the library, the reading positions are next to the stacks; in each room there is a librarian office and information counter attended by auxiliary staff.

The **library collection** is organized into thematic areas as follows:

- Circular area:

– Lower level: Basic Sciences rooms with books and monographs about the fields of mathematics, physics, chemistry, and computer sciences.
– Ground floor: Agrarian and Forest Sciences rooms with books and monographs about the fields of agriculture, agronomy, forestry, forest products, engineering.
– First floor: Veterinary Science and Food Technology room.
– Second floor: Newspapers and Magazine archives (*Hemeroteca,* 216.3 m^2). All the subscriptions to printed Journals are organized in thematic sections according to the profiles established into the rooms already mentioned.

- Rectangular area:

– First floor: Social sciences room with books and monographs related to the fields of economy, business, law, sociology, etc.
– Second floor: Humanities room with books and monographs about the fields of language, literature, history, philosophy, geography, art.

Apart from the areas we have already described, the building has the following **study areas** on the second floor:

- Group study room (319.83 m^2).
- Researchers' room (319.83 m^2).
- Information and reference room (319.83 m^2).
- Classroom (150 m^2) equipped with 22 PCs dedicated to multiple uses: formative sessions on the use and administration of library information which is taught by auxiliary staff, students' work, etc.
- Entrance hall where the Circulation Services counter is located.
- The Director's and Staff offices are located next to the researchers room.

The Veterinary Science and Food Technology reading room on the first floor (circular area) is 325.63 m^2 and provides 148 reading places.

There are 22 full-time people on the **library staff:**

- 7 Librarians, including the Director.
- 14 Library assistants (LA), 12 LA work from Monday to Friday and 2 LA work on weekends and holidays.
- 1 Support Staff member for administrative tasks.

With regard to internal organisation, the BUSC depends on the Vice-Rector for Research and Innovation. The general lines of operation are established by the USC Library Committee whose composition and functions are addressed in their own Regulations. According to Article 41 of these Regulations, the main duties of the Library Committee are:

- To approve, if appropriate, the annual report of activities, presented by the Director.
- To propose a provisional distribution of 75% of the ordinary budget for the previous year.
- To distribute and follow-up on the ordinary budget for every Faculty.
- To ask for and propose new acquisition of materials for research work which the USC then has to present to the Galician Ministry of Education during the annual call for grants.
- To resolve any other issues related to the proper working of the library as proposed by either the Director or the users.

Articles 11 and 13 of the aforementioned BUSC Regulations establish the creation, composition and functions of the Library Committees in each centre. The Veterinary Library Committee participates in the Inter-centre BUSC Committee in Lugo.

BUSC's Annual Operating Budget

Listed below is the annual budget for the acquisition of specific books and monographs in Veterinary Science over the past three years:

Year	Euros (€)
2007	21,519 €
2006	20,511 €
2005	20,922 €

Journals and newspapers are paid for with a different budget and centralised for the entire BUSC.

Library Opening Hours: Weekdays & Weekends

Autumn & Spring Semestres:	Monday to Friday:	8.30 AM - 21.30 PM.
	Weekends & holidays:	10.00 AM - 19.30 PM
	Summer vacation (August):	9.00 AM – 14.00 PM

During exam periods, the library stays open until 3.00 a.m.

Number of Loans to Students *per* Academic Year

In 2006 the number of loans to students was 39,065.

Computerised Document Search System that is accessible to students

The BUSC and the BUGalicia (Consortium of Galician University Libraries) work with the *Millennium Silver Platter* platform linked to the BUSC webpage. This platform offers the possibility of simple and advanced searches, and searches in the complete catalogue or for certain scopes (journals, old deposits/archives, Galician catalogue, etc.). A user can also store searches of personal interest. In addition, it offers information on the books and articles in a PDF format that the teachers recommend in their subject programmes (recommended Bibliographies). It also allows the users to check the books they have on loan, renew them, reserve resources on loan to other users, and even request books from the collections found in any of the many other USC libraries. Finally, another one of its functions is to remind users of expiration dates and such by e-mail.

Other computerised document search systems available to all staff (teaching and support staff) and students are:

- Associated databases.
- Associated electronic journals: some are independent, other are editorial packages such as *Science-Direct*, *Wiley*, *Taylor* & *Francis*, etc.
- Electronic books.
- Websites and other free access resources in Internet.
- *Refworks* (Bibliographical agent)
- In January 2008 a new SFX Service—a searcher/advanced linker of electronic resources with multiple applications, was installed.

On the BUSC webpage new acquisitions can be requested and requests for interlibrary loans can be carried out (e.g. through the ARIEL system).

8.1.2. Subsidiary Libraries of the Faculty

Please describe the subsidiary (e.g. Departmental) libraries of the establishment, and arrangements for student access.
Indicate whether the main library holds a list of individual books of the subsidiary libraries.

The BUSC was created in Lugo with the specific purpose of gathering together the collections of the other Centres or Inter-centre Libraries; thus, no other secondary Libraries in the Faculties have been allowed since the academic year 1997-1998. However, each Department is endowed with a Classroom-seminar where there are specialised volumes (teaching and research) on loan, from the BUSC. They are for the use of teachers and students doing supervised papers, practical sessions, etc. Some Departments have subscriptions to specialised research journals which are available to the students for consultation.

The Veterinary Faculty also has 2 Reading rooms for students, one in the Classroom Pavilion (60 places) and another in the Central Pavilion (148 reading places).

The VTH has a small specialised Library located in a Classroom-seminar. The books and Journals have been acquired as *per* the needs of the different Services and some were donations from pharmaceutical companies.

8.2: INFORMATION TECHNOLOGY SERVICES

(a) Audio-visual Service

There exists a centralized technological service (SERVIMAV) on the Santiago Campus for the production of audiovisual resources. Its purpose is to contribute to the enhancement of teaching and research using modern technologies, as well as to motivate the production and diffusion of didactic, educational and cultural documents. It is also in charge of the technical maintenance and custody of the *Mediateca*, that is to say, the audiovisual documents collection of the USC. Eight full-time staff members carry out its duties.

In Lugo, the Inter-centre Library has an important collection of slides, microfiche, videos, CDs and DVDs that are available on loan. Likewise, in the BUSC reading rooms, there are television, video and DVD players that allow users to visualize and consult the information contained in AV format.

Generally speaking, the Departments have computer support (CDs, DVDs) containing specialised information for their use in theoretical and practical classes. As an example, the Departments of Anatomy & Animal Production and Analytical Chemistry, Nutrition & Bromatology have produced 2 videocassettes for teaching purposes in recent years.

By means of the WIFI System, the entire Campus is connected to Internet and therefore to any specialised source of information.

The BUSC and the Veterinary Faculty have common viewing rooms for videocassette; all the classrooms in the Faculty have CD and DVD players available, as do most of the Departments.

- BUSC: 1 exposition room and a classroom equipped with 22 PCs.
- Central Pavilion of the Veterinary Faculty (videocassettes): 50 places.
- 7 classrooms (125-250 places each), and each Department, in general, 15 places.

At the BUSC the viewing rooms are open to the public during opening hours as previously described. In the Faculty and Departments, the rooms are open during lectures and practical classes or upon request, and closed on weekends and holidays.

(b) Computer Service

The Veterinary Faculty has 68 PCs available for the students distributed in 3 computer rooms: 2 are used for teaching (44 PCs -20 less than three years old-) and one, the RAI

computer room which students have free access to (24 PCs less than three years old). In general, every teaching unit has 1-4 computers available for free access to students during practical classes. Students have access to the computers in the Faculty on weekdays from 8.00 a.m. to 21.30 p.m., and in August from 9.00 a.m. to 14.00 p.m. This Service is closed in holidays and weekends.

Three undergraduates receive a scholarship from the USC to attend to the computer rooms in the Faculty (3 hours/ each day). Outside their timetable, the Information and Commissionaire's Office staff control access to the computer rooms and take note of any possible incidences. The Lugo Campus also has a full-time support staff for computer technical assistance.

The BUSC has a computer room with some 22 PCs (less than three years old) which can be used during opening hours. Throughout the academic year, the BUSC offers a programme of user formation featuring general sessions offered to all users and specific sessions dedicated to students and teachers as *per* their typology and thematic interests. Its focus is Information Literacy (IL) and the use of Library information sources like *OPAC*, *Webpages*, *Databases ind*ex (mostly associated ones), the bibliographical agent *Refworks*, *SFX service*, etc. and it seeks to develop both learning and self-learning processes. For the academic year 2007/08 the BUSC also offered an elective course called: *The University Library: searching for information in the net*, for students at the Lugo Campus. It focused on the development of information skills.

Throughout every year at the Veterinary Faculty, several computer information courses are given in the Computer classrooms with special prices for all USC members.

Many subjects use interactive CD-Rom for teaching purposes in the Veterinary Faculty. The number of available programmes is:

- Anatomy I and II: 2, respectively.
- Food Technology: 15.
- Infectious Diseases: 1
- Animal Nutrition: 2.
- Clinical Toxicology: 1.

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.

Generally speaking, the inter-centre BUSC collections on the Lugo Campus are considered adequate. They are upgraded continually with an active effort on part of professors who annually propose purchases for their areas of interest.

As far as our areas of interest are concerned, the Library is 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, on specific requests made by teachers, and on the bibliographical lists put forward by the Veterinary Library Committee and BUSC Library Committee. Since the teaching staff intervenes directly in the selection, the content of the collection is adapted to our teaching needs. In the case of books, although there is a minimum of at least one copy for each title recommended, we believe that in many cases (exam periods) this is not enough for our students. The annual subscriptions to Journals are also approved by the consensus of the *Consortium of Galician University Libraries* (BUGalicia).

Regarding the **opening hours**, they have been extended in recent years and now fulfil the needs of the majority of our students. The Library schedule is established by the BUSC Central Services's Office depending on the academic calendar. In general, the timetable covers the students' needs, including exam periods and weekends. On the other hand, by way of Internet, the entire USC community has access to the electronic resources of the BUSC. This means that students may find a convenient place to study and use the Internet options at any time.

Considering our number of students, the **provision of reading spaces and support personnel** could be deemed adequate; we have a good percentage of places/potential students during the entire academic year. However, at times, the 22 support staff of the inter-centre BUSC in Lugo are overworked.

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.

In recent years, the important improvement of learning resources has been patent. In December 2003, a new University Centre for learning resources was opened (CeTA, *Centro de Tecnoloxías para a Aprendizaxe*). It is headed by the Vice-Rector for Postgraduate and Continuing Education.

The development of the Virtual Campus of the USC *(USC Virtual)* was among the proposed objectives of CeTA. The *USC Virtual* allows teachers to offer several kinds of materials on Internet (http://www.usc.es/campusvirtual/). Besides uploading teaching materials, teachers can maintain an online forum here. Many of the Veterinary Faculty subjects use the more general Virtual Campus for teaching purposes. Moreover, Internet and/or computer programmes are commonly used for teaching in lectures and practical sessions; some of the programmes used have been created by Faculty teachers.

All in all, the *USC Virtual* is a tool that promotes learning, teaching, research, and academic management and is permanently available to all members of the USC community. All the USC 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, two years ago, the university installed an extensive WIFI network, which enables portable computer users access from anywhere on campus.

3. SUGGESTIONS

The inter-centre BUSC is highly regarded by the University community. However, in recent years, due to new information technologies, the Library has seen a reduction in its purchasing power.

More funding for the acquisition of books and monographs is needed, just as it is also necessary to increase the BUSC budget for scientific journals, especially those with online access. Moreover, the possibility of duplicating materials already available on the Santiago Campuses (i.e. scientific journals) would be useful for students and professors.

In order to improve the services offered by the BUSC, a Strategic Plan for the USC Library System (2007-2012) will soon be approved. This Plan contemplates the following strategic lines:
1. Reinforcing the role of the University Library in the context of the ESHE, Research, and in Society.
2. Definition of an improved organizational model for the BUSC.
3. Reorganization of the flowchart and of the BUSC staff.
4. Endowment of adapted facilities and equipment.
5. Establishment of administrative practices for the collections.
6. Library and the teaching and learning processes.
7. Library and research.

Another area which might be improved is the Service of Attention; a redistribution of the BUSC personnel would help it to be more efficient. Likewise, increasing the professors' commitment in the selection of the collection would also be an enhancement. Finally, the capacity of the free-access Computer rooms in the Faculty (RAI) and in the Inter-centre BUSC in Lugo should be increased.

9. ADMISSION AND ENROLMENT

CHAPTER 9. ADMISSION AND ENROLMENT

1. FACTUAL INFORMATION

9.1: NUMBER OF STUDENTS

TABLE 30. Undergraduate Student Composition (Academic year 2006-07)

a.	**Total Number of Undergraduate Students**	**960**
b.	Male students	**327**
c.	Female students	**633**
d.	Nationals (1)	**919**
e.	Foreign students	**41**
	- from EU countries	**31**
	- from non-EU countries	**10**
f.	1st year students	**147**
g.	2nd year students	**124**
h.	3rd year students	**112**
i.	4th year students	**104**
j.	5th year students	**107**
k.	6th year students	**78**
l.	7th or subsequent year students	**287**
m.	Students not in any specific year	**-**

(1) Classified according to their place of birth; the 233 students with no specified place of birth were considered as nationals.

TABLE 31. Postgraduate Student Composition (Academic Year 2005-06)

n.	**Total Number of Postgraduate Students**	**118**
o.	Male students	**68**
p.	Female students	**50**
q.	Nationals	**110**
r.	Foreign students	**8**
	- from EU countries	**1**
	- from non EU countries	**7**
s.	1st year students	**48**
t.	2nd year students	**36**
u.	3rd year students	**8**
v.	4th year students	**9**
w.	5th or subsequent year students	**17**

Total number of students in the establishment (a + n): **1,078**

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.

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).
• **Advanced Level** (non compulsory, two years; usually 16-18 years of age).

Depending on their preferences and future study plans, Advanced level 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 advanced level: Scientific-Technical and Health Sciences. Those students wishing to take a degree in Veterinary Science are encouraged to choose the Health Sciences sub-option within the Life and Health Sciences option.

• **Higher Education** (University degree).

Admission requirements for University Studies are established by the Ministry of Education and Science (Organic Law 1/1990, 3rd October, LOGSE) and the Galician Autonomous Government (Decree 275/1994, 29th July, amended by Decree 231/2002, 6th June). For access into a University programmeme of study, once the student has completed his/her advanced levels, s/he must pass the University Entrance Exam (PAAU, *Probas de Acceso á Universidade*, Decree, 8th Feb. 2007). The PAAU is the same test for all Public Universities in Galicia and is offered twice each year—once in June and once in September. There is no additional test to enter the Veterinary Faculty. Foreign students who request permission to enrol in the Veterinary curriculum at our Faculty have to have previously passed 60 credits in their Faculty. To validate other foreign degrees, a student must have already passed 15 credits.

Access to Veterinary Studies at the USC is regulated by a *numerus clausus* system; in accordance with the pre-approved number of students to be admitted (117 in 2007-08) and with the number of students requesting admission, a certain cut-off line is established. The students' access mark is calculated using the average from their Advanced levels (60% of the final mark) and their University Entrance Exam scores (40%). The mark required to enter our Faculty was 6.39 on a scale of 0 to 10 for the academic year 2007-08. This year, the maximum number of places offered was 123 but in the end, 14 applicants had a 6.39 total and, thus, 136 had to be admitted. For students requesting to continue Veterinary studies which they began in another Veterinary Faculty, there is no numerical limit.

Since there are always more students with top grades applying than places available, the admission of undergraduate students in our Faculty is very competitive (See Table 32 for further information).

Selection Criteria and Process Used in Addition to the Minimum Admission Requirements

Applications from successful candidates who have passed the PAAU in June, or in previous years, will be processed first. Then, we take applications from successful candidates who passed the PAAU in September; however, this is usually not necessary, as generally the places available are filled in June.

A percentage of the places offered are 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 Mayores y Servicios Sociales,* IMSERSO) or the Galician Autonomous Community, giving a disability rating of 33% or higher.
2. **Gifted athletes**: 3% 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**: 2% of places are reserved for them.
4. **Foreign students**: 2% of places are reserved for students from countries outside the EU. To be admitted, they must have passed the University Entrance Test in the current or preceding year, by means of the Distance Learning University in Spain (*Universidad Nacional de Educación a Distancia*, UNED).
5. **Students older than 25**: 2%. Special PAAU exams have been developed to allow them another opportunity to carry out their University studies.

Comparative Level of Knowledge Base in Scientific Disciplines of Students Applying for or Starting Veterinary Training from Studies at School

Even when their marks are lower, prospective students that took the Health Sciences option for their Advanced levels (as stated in the LOGSE) have preference over students that take other options. Compulsory subjects in the Health Sciences option are *Biology* and *Chemistry*; thus, *Mathematics* and *Physics* are electives and may not have been taken. The students tend to avoid the latter two in favour of others,

thought to be easier, in order to obtain higher marks and achieve a better grade point average in their academic record. This can cause problems in the first year of the Veterinary degree, where *Mathematics* and *Physics* are core subjects.

Limit to the Number of Students Admitted each Year

A limited number of students are admitted. Every year, the Veterinary Faculty, by means of its Faculty Board, proposes the specific number of places to be offered. The Faculty then sends this proposal to the University Government Board, which, in turn, can decide to approve it or not. If approved, it is sent on to the University Coordination Committee (Ministry of Education and Science). This body is empowered to decide whether to accept it or not; it usually accepts the USC proposal. In recent years, the number of places we proposed was lower than what has traditionally been accepted by the USC. It allows a maximum decrease of a 5% with respect to the previous year when properly justified.

Determination of the Number of Government-funded Student Places

Since the USC is a Public University, the fees that our students have to pay are not very high (650€/year on average). Even so, the Education Protection Act (19th July 1994, BOE 21st July) sets out indirect financial aid or *free tuition* under certain circumstances:

1. **Outstanding marks***:* In the Spanish grading system (0-10), the highest possible mark is a 10 or the so-called *Matrícula de Honor (MH)*. For each MH obtained, in the next academic year the student will be able to enrol for free in the same number of credits as the ones for which he got the MH mark. In addition, students with an average grade of MH during Advanced levels 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 Galician Autonomous Community, to pay their University fees (RD 2298/1983 28th July, Article 3.1). The grants are given according to the student's family income and academic records. The orphaned children of Civil Servants also get free tuition.

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 authorised by the Rector to accept or not, by taking into account the availability of places and the average mark in the candidate's academic record. In this Faculty, it is the Permanent Committee that considers academic records and approves transfers. By agreement of the USC, an important requirement in accepting the transfer from private Faculties is that the mark on the University Entrance Exam results card be at least equal to the cut-off mark required by our Faculty in the

academic year in which the transfer request is made. Still, this type of access to our Faculty is minimal (2-3 students/year). We also regularly receive foreign students within official International Exchange Programmes. Our Faculty has been very active in these Exchange Programmes, and the number of incoming and outgoing students has continuously increased over the last few years. Our Faculty has Socrates/Erasmus agreements with 20 European Faculties, and also participates with 20 outgoing and incoming students in the Séneca/SICUE Exchange Programme, which is an agreement among the Spanish Veterinary Faculties (10 Faculties*2 students each).

Foreseen Changes in Annual Intake and Adjustment to These Changes

Every year, the Faculty asks for the maximum decrease (5%) allowed by Spanish authorities. They are reluctant to allow further reductions in those degrees with a high demand, since it would mean a decrease in the revenues derived from student fees. Thus, for the 2008-09 academic year, the Faculty Board approved a proposal of 111 students as the "standard" intake number that still has to be approved by the USC.

TABLE 32. Intake of Veterinary Students

Year	Number Applying for Admission	Number Admitted	
		"Standard" Intake	Other Modes of Entry (1)
2006-07	642	136	11
2005-06	622	132	7
2004-05	582	132	8
2003-04	732	131	22
2002-03	750	135	17
2001-02	785	129	11
2000-01	902	140	11
1999-00	740	139	16
1998-99	448	149	16
1997-98	564	152	15

(1) Students from other Veterinary Faculties continuing their studies, foreign students, etc.

9.3: FLOW OF STUDENTS

TABLE 33. Student Flow

Of the students whose admission year was 2001-02, how many are at present (five years later) in the:

b.	1st year	2
c.	2nd year	2
d.	3rd year	-
e.	4th year	2
f.	5th year	62
g.	How many have graduated	26
h.	How many have dropped out or been asked to leave	35
i.	How many are not in any identifiable year	-

TABLE 34. Number of Students Graduating Annually (from Undergraduate Training) Over the Past Five Years

	Year	Number graduating
j.	2005-06	127
	2004-05	154
	2003-04	130
	2002-03	176
	2001-02 (1)	138

(1) In that year a change of syllabus was undertaken.

TABLE 35. Average Duration of Studies

In the case of students graduating in year 2005-06, how many students attended the veterinary training course for 4, 5, 6, 7, 8, 9, 10 years or more?

	Duration of Attendance	Number
k.	4 years	3
l.	5 years	18
m.	6 years	16
n.	7 years	17
o.	8 years	17
p.	9 years	16
q.	10-13 years	33
r.	More than 13 years	7
Average duration of studies of the students who graduated in year 2005-06:		8

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.

Requirements for Progressing to a Subsequent Year of the Course

As stated in Chapter 4, 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 next, but in the 2000 curriculum approved by the Faculty Board there are special requirements for progressing from first to second cycle. To access the second cycle, students must have passed a minimum of 70% of first-cycle core credits (92 credits up of 131). There are also limitations on enrolling in the core subject *Obligatory extramural fieldwork* (*Estancias*). This subject is taken in the summer (July to September) of the 4th or the 5th year for the on-course students, since they have 450 hours of pre-professional practical sessions—organised in 10 weeks—that are incompatible with ordinary attendance to lectures and practical classes. Off-course students can enrol in this subject from October to December. In any case, it can only be taken by students who have passed 100% of the core credits from the 1st, 2nd and 3rd year of the course (193 credits in total). There are no other enrolment limitations for this degree.

Academic Circumstances Under Which the Faculty Would Oblige Students to Leave the Course

As a general rule in the USC, students must have passed a minimum of 30 credits in the first three subsequent years after they start their studies. Otherwise, they are obligated to leave the Faculty and cannot enrol again under any circumstance in this specific degree. In addition, students who have unsuccessfully used up all the possible retakes for one subject, (maximum seven) 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

Standard of the Students Starting the Course

In general, students entering this course have outstanding secondary school academic records. The access mark is medium-high for the USC. Moreover, the percentage of students who chose Veterinary Science as their first option for University study, and were able to enrol in this Faculty is very high; thus, the level of motivation our students have tends to be elevated. Nonetheless, some students still enter the Faculty with poor study methods, written skills that are not quite up to par, and a rather comfortable attitude with respect to how they focus on their academic duties.

Ability of the Faculty to Satisfactorily Decide the Number of Students it Can Accept

The Faculty Board proposes the number of places, which must be approved by the USC Government Board and also by the University Coordination Committee in Spain (Ministry of Education and Science) which has the final decision. In recent years, the Faculty's proposal to decrease the standard number of students that it can accept has always been approved with minimal variations (± 10 places).

Factors that Determine the Number of Students Admitted

We try to adapt the number of students that we accept to the availability of human and material resources and means. The USC also takes into account the demand for Veterinary graduates in the labour market.

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, in order to be able to reduce the group size in certain types of practical teaching and to be able to implement new teaching methods.

Progress Achieved by Students in Their Studies, and the Faculty's Ability to Ensure that Satisfactory Progress is Maintained

The TEAC undertakes evaluation and monitoring of the teaching/learning process. Its meetings always include students and the periodical surveys carried out under the supervision of that Committee are very useful since they helps us to improve our perception of the situation and the adequacy of students' progress. It is also possible to analyse the latter by way of the professors' tutorials.

Percentage of Students Who Will Eventually Graduate

The number of students who graduate has remained more or less stable for the last 5 years. An increase in the number of graduates from our Faculty is not expected in the foreseeable future, due to the present student intake limitations. We consider that the yearly number of graduates from all Veterinary Faculties (Spain) (approx. 1,100 in 2003) is too elevated for the demand of Veterinarians in Spanish society. However, a recent representative study for the evaluation of the employment of Veterinary graduates in Spain (for which a total of 3,514 questionnaires filled out by Veterinarians and 345 filled out by companies from 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 labour instability. In order to improve the latter and to ensure availability of appropriate employment for our Veterinary graduates, we think it is important to try to reduce the number of yearly graduates. Moreover, we also feel that it is essential to continue to reduce the current student intake until it reaches a 90-100 maximum.

3. SUGGESTIONS

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

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

Student Intake

Gradually, we have been able to achieve acceptable numbers and this allows for good training; however, a slight reduction in intake would be better. We also believe that our continued effort to ensure that that in the future the Ministry of Education and Science does not increase the number of entry places as a way of compensating for the reduction in student numbers is very important. Other degrees have been affected by this decline which is a direct consequence of the current fall in population in Spain.

Drop-Out Rate

We have a significant drop-out rate—around 18%—but, in many cases, it does not actually count as a real drop-out. A substantial number of off-course students do not enrol in any subject for a span of time (1 or 2 years or more), and then begin to enrol again in order to continue their studies. Most of these students are working and sometimes find it difficult to attend to their academic duties.

Average Length of Studies

The average student takes too long to finish his/her studies. Our students have a good academic level, but the current curriculum is usually considered to have a heavy workload, which makes it difficult to finish the degree in five years. Our students have to be trained in 4,300 h which means some 860 h/year. In addition, if students dedicate a similar number of hours to self-learning and study, the total workload for an academic year (40 weeks) is at least 1,720 h. For those students in good academic standing who do not repeat any subjects, it is means a minimum of 43 h/week. This is the reason why the Spanish Dean's Conference asked the Government authorities to increase the duration of our degree to 5.5 years.

Another circumstance that causes the average length of studies to be drawn out over time is the USC policy that allows students to repeat enrolment in any one given subject an infinite number of times. The students only have 7 retakes for each subject; however, they can be enrolled without sitting the final exams and if they are not physically present, then these sittings do not count as a retake.

Currently, we are in the process of implementing a new Syllabus of Veterinary Medicine in Spain, in order to adapt it to the ESHE. The new curriculum will probably have a reduction in the teaching workload (mainly less theoretical lectures), which will hopefully improve this situation. One other point that might contribute to both a heavy workload and to the reason why students take longer to finish is the absence of important limitations for progressing on to the subsequent year. This situation makes it possible for the students to be enrolled in many subjects from different years of the degree. Obviously, this can lead to an excessive workload, as well as make it very difficult to attend all the programmed lectures or practical classes due to timetable incompatibilities. This possibility might also lead to mistakes in the calculation of the average duration of studies, because students are considered to be enrolled in a higher course, even when they have several subjects pending from a lower one. Consequently, the average duration stated in Table 35 (8 years) may be even lower.

Level of Knowledge on Admission

We consider the problem of *Mathematics* and *Physics* described in section 9.2.c to be quite important. We think that both of these subjects should be obligatory for all Advanced level students in the Health Sciences option. Our Faculty is trying to solve this problem by offering the so-called "Zero" subjects. They are special courses taught before the beginning of the regular classes in the first year of the degree (in September). During the present 2006/07 academic year, three optional subjects, *Mathematics, Physics,* and *Chemistry,* were offered in order to enable students with an insufficient level to complete their training before they started their Veterinary studies.

10. ACADEMIC AND SUPPORT STAFF

CHAPTER 10. ACADEMIC AND SUPPORT STAFF

1. FACTUAL INFORMATION

TABLE 36. Personnel in the Faculty and VTH

	Budgeted Posts (FTE)	Non-budgeted Posts (FTE)	Total (FTE)
1. Academic staff			
a) Teaching staff	108.875	-	108.875
b) Research staff (1)	-	14	14
c) Others (please specify)	-	-	-
d) Total academic staff	108.875	14	122.875
2. Support staff			
e) responsible for the care and treatment of animals (2)	5.5	-	5.5
f) responsible for the preparation of practical and clinical teaching (3)	5	-	5
g) responsible for administration, general services, maintenance, etc (4)	47.95	0.5	48.45
h) engaged in research work (5)	-	22.87	22.87
i) others (please specify) (6)	13.83	-	13.83
j) Total support staff	72.28	23.37	95.65
3. Total staff (d + j)	**181.155**	**37.37**	**218.525**

(1) Research staff (PhDs and graduates in PhD training) contracted by research projects or Galician research programmes ("*María Barbeito*").
(2) 2.5 FTE in the Faculty and 3 FTE in the VTH.
(3) 5 FTE Laboratory Technicians in the Faculty.
(4) 11 FTE based in the Faculty, 12.25 FTE in the VTH, 25.2 FTE in Lugo's Centralised services (apportioned according to the number of students in the Faculty with respect to the whole Campus).
(5) Technicians contracted by research projects.
(6) Contracted services for cleaning, security, cafeteria and photocopier.

During the academic course 2006-07 there were 128 teaching posts (111.875 FTE) in our Faculty as we have already shown in Table 36; of these 128 posts, 83 had an stable (tenured) position: 12 full professors (*catedrático de universidade*) and 71 professors (*profesor titular de universidade ou escola universitaria*); other posts were 12 stable contracted PhD teachers (*profesor contratado doutor*), 14 associate professors (*profesor asociado*, *profesor asociado hospitalario de ciencias da saúde*), 5 provisionally contracted teachers to cover vacancies (*profesor contratado interino de sustitución*) and 14 scholarship holders or research contracts

(*bolseiros PFPU, PFPI, Isidro Parga Pondal*). Table 37 shows allocation of these posts to the various departments.

TABLE 37. Allocation of Personnel to the Various Departments

Name of Department	Academic Staff						Support Staff		
							Technical/animal		Admin/ General
	CU	TU/TEU	PCD	A/PACS	PIS	PI	Teaching	Research	
Anatomy & Animal Production	2	11/0	3	1/0	1	-	1	-	0.5
Analytical Chemistry, Nutrition & Bromatology	1	4/1	2	-	1	-	-	3.75	-
Animal Biology	-	3/0	-	1/0	-	-	-	-	-
Animal Pathology	2	14/0	-	1/0	-	5	1	4.24	0.5
Applied Physics	1	1/1	1	-	-	-	-	-	-
Biochemistry & Molecular Biology	1	4/0	-	1/0	-	-	-	1	-
Botanics	-	-	1	1/0	-	-	-	-	-
Cell Biology & Ecology	-	1/0	-	-	-	-	-	-	-
Chemistry Physics	1	1/0	1	-	-	-	-	-	-
Electronics & Computation		1/0	-	-	1	-	-	-	-
Genetics	-	3/1	1	-	-	3	-	5.38	-
Microbiology & Parasitology	1	4/0	-	-	-	-	-	3.24	-
Organic Chemistry	-	-	2	-	-	1	-	-	-
Pathological Anatomy & Forensic Sciences	-	3/0	-	-	-	-	-	-	-
Pharmacology	1	2/0	-	1/0	-	2	-	0.79	-
Physiology	1	4/0	-	1/0	-	-	-	0.14	-
Plants Production	-	3/0	-	1/0	-	-	-	-	-
Statistics & Operational Research	-	0/1	-	1/0	-	-	-	-	-
Veterinary Clinical Sciences	1	8/0	1	1/4	2	3	1	2.41	0.5
VTH	-	-	-	-	-	-	3	-	12.25
Faculty	-	-	-	-	-	-	4.5	1.91	9.5
TOTAL	**12**	**67/4**	**12**	**10/4**	**5**	**14**	**10.5**	**22.86**	**23.25**

CU (*Catedrático de Universidade*): Full professor, civil servant (tenured post), full time.
TU/TEU (*Profesor Titular de Universidade/Profesor de escola universitaria*): professor, civil servant (tenured post), full time.
PCD (*Profesor Contratado Doutor/Axudante Doutor*):Contracted PhD holding Professor, stable hired position, full time.
A/PAHCS (*Profesor Asociado/Profesor Asociado Hospitalario de Ciencias da Saúde*): Associate teacher/Associate Hospital teacher; hired position, 6 A full time and 6 A & 4 PAHCS part time.
PIS (*Profesor interino de sustitución*): contracted teachers to cover vacancies; hired position, full time.
PI (*Persoal Investigador* PFPU, PFPI, *Isidro Parga Pondal*): scholarship holders or hired positions financed by the Galician government for highly specialised scientists; both participate in undergraduate teaching.

PI academic positions are covered by postgraduate students funded by an official fellowship (Spanish ministry, Galician Government, USC) that may collaborate in practical teaching up to 60 hours/year during the first 2 years of the fellowship and up to 90 hours/year during the 3rd and 4th year. This category also includes specialised scientists contracted by the Galician government that may collaborate up to 90 hours/year in practical and theoretical teaching. These potential accounts for 3 FTE.

The complete teaching staff working at the VTH are teachers from several Departments of the Faculty (mainly, from the Veterinary Clinical Sciences Department, followed by the Animal Pathology Department and the Pharmacology and Pathological Anatomy and Forensic Sciences Department), and they are computed in their respective Departments.

Table 37 does not include Support Staff from the general USC services in the Lugo campus properly apportioned according with the number of students in our centre (library, enrolment unit, security, cleaning, cafeteria, photocopier, etc). They appear in Table 36.

TABLE 38. Personnel Responsible for Undergraduate Teaching

A.	Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching	108.875
B.	Number of Research Staff involved in undergraduate teaching	3.00
C.	Total number of Personnel Responsible for undergraduate teaching (A + B)	**111.875**

Ratio: Teaching Staff/Undergraduate Students

$$\frac{\text{Number of Teaching Staff}}{\text{Number of Undergraduate Students}} = \frac{111.875}{960} = \frac{1}{\mathbf{8.58}}$$

Ratio: Teaching Staff/Support Staff

$$\frac{\text{Number of Teaching Staff}}{\text{Number of Support Staff}} = \frac{111.875}{95.65} = \frac{1}{\mathbf{0.85}}$$

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

Teaching staff:

As stated in Chapter 2 (Organisation), the Department is the body that has the right to request new academic positions and hire Teaching Staff. There are two types of Academic Staff: tenured and hired, each one recruited in a different way. In both cases, the funding comes from the USC and the Galician 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 Galician Autonomous Government and the *USC Statutes*. Also relevant, as far as the teaching of clinical subjects in Health Sciences is concerned, is what appears in the General Law on Health (*Ley General de Sanidad)* and its applications.

Traditionally, Professors at the University hold tenured positions, whereas the hired positions are mainly for young teachers and part-time staff. Tenured positions (called "*profesor titular*"=Professor, and "*catedrático*"= Full Professor) are Civil Servants. Staff needs are determined by the Departments themselves, who present the request for posts to the USC Government Council. 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 *USC Teaching Capacity in the Different Areas of Knowledge* (*Capacidade docente das areas*). This document was drawn up by the USC Government Council, and it establishes the need for academic staff based on the number of students, teaching credits, and type of practical teaching of each Area of knowledge. Although data included in the teaching capacity document are not fully determinant, it serves as a useful guide for the Rectorate when it has to decide if the Departmental requests are appropriate or not.

If the request is approved by the Rectorate and refers to Civil Servant posts for Professors (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 out in the *LOU*): the Ministry of Education and Science announces a competitive certification process with access for PhD holding Teachers and/or Researchers. The Examination committee is made up from Tenured Professors from all over the country, chosen at random and belonging to the same Area of Knowledge as the post. The candidates are accredited ("*acreditación*") according to their teaching experience, research capacity, and merits. The candidates, who complete this certification process, may be chosen afterwards by the universities to cover their Tenured Staff requirements.

When posts for contracted teachers are involved, the Rectorate carries out the recruitment and appointment process as *per* the regulations set out in the LOU and by the Autonomous Galician Community. The selection is carried out through Hiring committees, which have representatives from the Faculty, the Departments and the Trade Unions. Contracted Staff have the same rights and obligations as the Tenured Staff, as dictated by law. At present, there are seven different types of contracted professors. All of them participate in the teaching activity of the Departments, according to the terms of their contract; in most cases, they also carry out research.

Support Staff:
The number and distribution of the Support Staff are decisions made directly by the Rectorate and depend on the needs of each Centre and Department. In this case, there are also two types of support staff: Civil Servants and Contracted positions. In both cases, their financing, recruitment, and hiring depends on the University; recent criteria for determining the need for support staff are the number of degrees granted by the establishment, the number of students, the number of teachers, and the annual budget managed by the centre. At present, the USC is reconsidering the posts in administration and laboratories for each centre so as to better adapt them to the real workload. Currently, there also exists a growing number of support staff involved in research, whose funding and activity is related to different types of research contracts and projects and who are paid with private funds or public research funds. These posts are temporary and the possibility of keeping them is contingent on maintaining this research funding. We have had an important increase in these non-budgeted, non-permanent positions for research support because recently the process of hiring people with financing from research projects has been made easier.

When there is a need to create a new teaching or support staff position, the USC advertises this possibility and an open selection process takes place. These vacancies are usually filled with little difficulty but there is always an objectionable delay.

It is very difficult to increase the number of tenured positions due to the general system. New positions are conceded based mainly on the ratio between number of students and teachers. As the real number of students in our Faculty has been decreasing over the last years, the number of tenured positions has not changed substantially. The selection system is quite competitive (it is a national competitive examination process) and there are usually many candidates for any post available.

One of the problems stems from the fact that the Departments' perception of their teaching needs does not always coincide with that of the Rectorate. The latter recently drew up the *USC Teaching Capacity in the Different Areas of Knowledge* document that outlines their contracting criteria. In it, the minimum number of students in practical groups is 20 for each teacher in non-clinical subjects, 10 for the clinical subjects and 7 only for *Medical Pathology* and *Surgery*. Some Departments in our Faculty complain that this size is clearly too large for groups of veterinary practical work; in fact, the clinical practice sessions have been given in smaller groups for years in order to guarantee good teaching quality, but this effort has never been recognised by the USC.

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 well-deserved recognition since the former teaching staff contracts were very precarious even for those who had a good Curriculum Vitae and had been working, in most cases, for many years at the USC. However, still pending in our University is the establishment of a "Teaching Career" which allows the teacher to have guaranteed stability and promotion prospects in line with pre-established criteria. At present, promotions depend fundamentally on vacancies occurring as the result of retirement or relocations, and do not depend on merit or seniority.

Concerning staff employment, the VTH has the capacity to contract Clinical, Support and Administrative Staff which are paid out of its own budget (so-called *own proposal contracts*). In addition, the VTH budget includes payments to 20 internships for Veterinary Graduates who carry out clinical activities in the Small Animal Area (17 Interns/Residents who carry out rotations in the Medicine, Surgery, Anaesthesia and Hospitalisation Services) and in the Large Animal Areas (3 Interns/Residents who carry out rotations in the Equine Medicine, Equine Surgery, Ruminant Medicine and Surgery Services). The selection process for these Interns/Residents depends directly on the VTH Council in accordance with objective publicised criteria tables.

More independence exists for contracting Staff with funding from research projects or in collaboration with companies, since in these cases the advertisement and recruitment for the position is carried out by the Project Coordinator.

Indicate whether it is straightforward to employ additional staff from service income (*e.g.* from revenues of clinical or diagnostic work).
Describe the regulations governing outside work, including consultation and private practice, by staff working at the establishment.
Describe the possibilities and financial provisions for the academic staff to:
a) Attend scientific meetings;
b) Go on a sabbatical leave.

It is not difficult to employ additional Staff with income generated by the Services offered or research projects. However, it is worth mentioning that the different Services (Diagnostic Services and Research Support Services) are not funded by the USC and are not allowed to have a deficit. Given this positive situation, they may manage their economy in an autonomous way, even when hiring personnel.

Full time Teachers are not allowed to have another job outside the USC (consultation or private practice), except in official institutions and with previous authorization from the USC (Law 53/1984, 26th December, which regulates incompatibilities of the personnel working in Public Administrations). Part time teachers can do so.

Academic Staff should seek financial support from external sources to attend scientific meetings. These funds usually come from research grants, projects, contracts, clinical work, etc. In addition, the USC offers specific grants for this type of activity, although the number of grants is quite limited (450,000 € in 2007 for the whole USC); applications are evaluated and scored by the Faculty Research Committee for distributing the available budget among those who request it. These activities can also receive a grant from programmes offered by the Spanish and Galician Ministries of Education.

The USC has a sabbatical leave programme for Tenured Teachers with 25 years of service; thus, every 7 years of full time work they can spend one year on sabbatical. The problem is that USC only approves sabbatical leaves for teachers in those Areas of Knowledge with adequate teaching capacity; otherwise, the request is denied. Leaves for shorter periods of time are easier to obtain as long as the teaching duties are taken care of by the Department.

2. COMMENTS

Comment on the numbers of personnel in the various categories.
Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sector.
Comment on the ease or difficulty of recruiting and retaining personnel.
Comment on the percentage of veterinarians in the academic staff.

Academic Staff: The number and, more importantly, the category of positions have been improving steadily for the last two decades. In recent years, there has been a certain stabilisation of Teaching Staff which has had a positive effect on specialisation and dedication to teaching and research in the Centre; however, the number of Teachers responsible for the teaching programme in the Faculty is clearly insufficient for the total number of students. The financial penury of the USC over the last few years also had a negative side: a slack in the hiring of new Teachers that makes replacement very difficult and will lead to an ageing Teaching Staff in the future.
We consider that the Academic Staff is high-quality; moreover, generally speaking it is young (average age: 42), 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: facilitating the adoption of new teaching methodologies and the implementation of new technologies in the classroom. In some Departments, a relative imbalance between areas may exist.

Support staff: The number of Support Staff has increased during the last 6-7 years due to the abovementioned hiring system from research projects or diagnostic work. These two activities have been very active in recent years, providing an important potential for the recruitment of new people, mostly Technical Staff and Graduate students. We consider

this a very positive situation, although the caveat might be that those are non-permanent positions that may disappear in less positive circumstances.

Regarding permanent Support Staff, the USC promotes decentralisation of Administrative and General Services in order to attain a more efficient use of human resources. Nevertheless, the number of Support Staff is insufficient and unbalanced for the Faculty needs, especially in offering support for all the teaching activities. For example, all Support Staff for teaching activities work in the mornings and cannot help to organise and prepare afternoon practical sessions.

In comparison with the private sector, and even with the official government sectors, the salary levels of the Academic Staff are lower. The high qualifications required to obtain a University teaching post is not reflected in the financial rewards they receive. This could have a negative effect on the 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 economical remuneration and career development.

The percentage of Veterinarians in the Academic Staff is around 60%. The large majority of Academic Staff in the three main Departments (Animal Medicine and Surgery, Animal Health and Anatomy, and Animal and Food Science) is comprised of Veterinarians, whereas this percentage is lower in the Basic Sciences Departments.

3. SUGGESTIONS

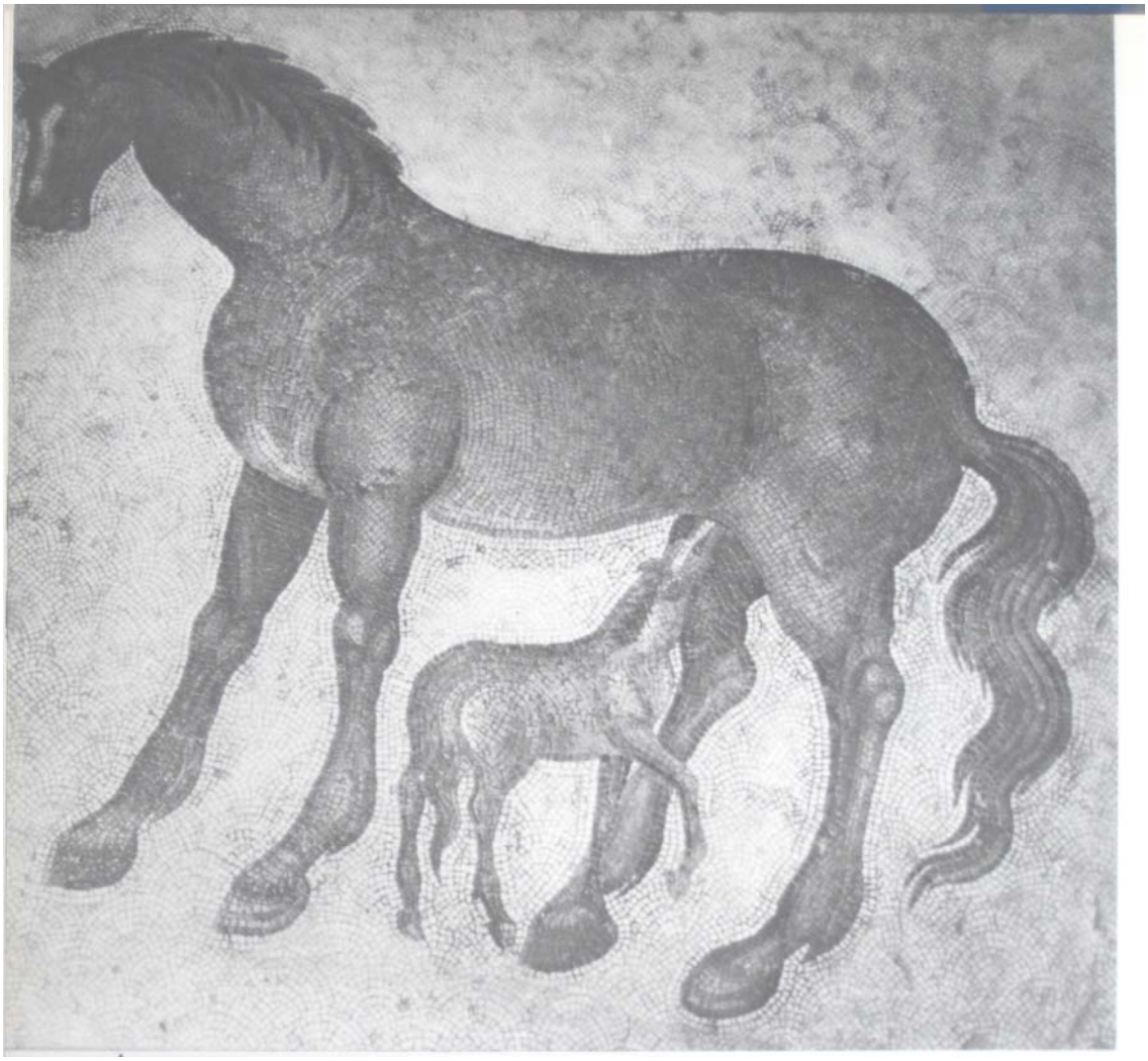
If the ratios for your establishment do not fall into the category "satisfactory" according to the indicative table in Annex I, what can be done to improve the ratios?

The ratios between Teaching Staff and Students and between Teaching and Support Staff fall in the unsatisfactory ratio. We would like to comment on some situations that we are trying to improve:

- 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 towards the future, this process should be initiated with enough time to ensure excellent quality of teaching and research and this should continue with some predefined promotion structure. There might more professional security with the establishing of a 'Teaching Career Structure' which would allow a better understanding of criteria and the possibilities of future promotion, based on the *Curriculum Vitae* and time in service. This might help promotion prospects for Academic as well as for Support staff.
- To improve the Teacher/Student ratio it will be necessary to contract 15.5 FTE new Teachers in the Areas of Knowledge which are deficient. In addition, it must be stressed that in order to improve the quality of veterinary training in some areas, the

group size in certain types of practices needs to be very small (3-4 students/group in some cases); this is not taken into consideration by the Rectorate when establishing the Teaching Capacity of our Faculty.

- Although the number of Support Staff has slowly been increasing in recent years, the number of positions here should continue to increase and/or their schedules be diversified so as to cover morning and afternoon activities.
- Support staff is not allowed to have teaching responsibilities. This is especially important in the case of the Veterinarians of the VTH, who are not Academic Staff, but who have students present in their consultations. Actions are being undertaken with the Rectorate so that the Clinical Activities—that these Veterinarians working as Support Staff also perform—may be recognised as teaching.
- Although the contracting of Researchers and Support Staff can be funded through research projects, the opportunities available from the Rectorate, and/or Spanish and Galician governments to receive more financing for specialist Support Staff for research and clinical activities, or for grants to attend Conferences must not be passed over.
- The Post definitions and qualifications for Support Staff have not been updated in the USC for many years, and this should be improved in order to adapt them to the profiles of the Faculty's requests.
- There should be greater participation on part of the Faculty or Departments in the recruitment of the Support Staff contracted by the University so as to guarantee a good match to the profile required; at present, Staff recruitment is decided by a committee designated by the Rectorate, with no representation of the Department where the post is to be held. This contrasts drastically with the flexibility and autonomy in the appointment of Staff when using external income.



11. CONTINUING EDUCATION

CHAPTER 11. CONTINUING EDUCATION

1. FACTUAL INFORMATION

11.1: CONTINUING EDUCATION COURSES HELD AT THE FACULTY

Continuing Education is one of the most important activities for Academics. It makes their work accessible to professionals as well as to society in general, because of the diffusion of research findings, the refresher courses for Practitioners and the social impact and awareness of University activities that CE entails.

Due to the intense research and clinical work in our Faculty, we have been pioneer and, one of the most active Faculties in the USC as regards Post Graduate and Continuing Education possibilities for new graduates, Veterinarians, and other sanitary, agricultural or environmental professionals. The CE courses we offer are also organised by our staff outside the Faculty.

TABLE 39. Courses Organised by the Faculty Itself in 2007

TITLE OF COURSE	NUMBER OF PARTICIPANTS	TOTAL NUMBER OF HOURS IN THE COURSE
DEPARTMENT OF VETERINARY CLINICAL SCIENCES		
XIII Congress of the Spanish Society of Veterinary Internal Medicine (SEMIV) : Medical disorders of digestive system	150	25
XIII National Congress of the Spanish Society of Veterinary Odontology (SEOVE)	300	20
Course on The Commitment of Companies in Veterinarian Training	350	20
Course on Necropsy in Dairy Cattle: (2 courses)	10/course	8/course
Conference on Bovine Podology	18	25
DEPARTMENT OF VETERINARY CLINICAL SCIENCES + VTH *ROF-CODINA*		
Course on Qualifying to Run an X-ray Diagnosis Device (speciality in veterinarian X-ray diagnosis)	23	30
Course on Basic Horseshoeing	60	30
Course on The Colt: from birth to the first year of life	90	30
VTH *ROF-CODINA*		
Workshop on Laparoscopic Surgery	12	15

TITLE OF COURSE	NUMBER OF PARTICIPANTS	TOTAL NUMBER OF HOURS IN THE COURSE
DEPARTMENT OF ANIMAL PATHOLOGY		
Course on Ultrasound Scanning Applied to Reproduction in Cattle (2 courses)	7/course	8/course
DEPARTMENT OF ANALYTICAL CHEMISTRY, NUTRITION AND BROMATOLOGY		
Course on Nutrition and Health	60	30
DEPARTMENT OF PHARMACOLOGY		
Lecture on Veterinary Pharmacovigilance	50	1
DEAN'S OFFICE		
IV Conference on Career Guidance in Veterinary Medicine	150	20
III Conference on Porcine Husbandry and Nutrition	190	15
II International Conference on Reproduction: Ultrasound Scanning on Cattle	90	10
Course on Dog Grooming	25	30

TABLE 40. Courses Organised by the Faculty Itself in 2006

TITLE OF COURSE	NUMBER OF PARTICIPANTS	TOTAL NUMBER OF HOURS IN THE COURSE
DEPARTMENT OF VETERINARY CLINICAL SCIENCES		
New Tools for the Treatment of Joint Pathology	20	15
Course on The Commitment of Companies in Veterinarian Training	300	20
DEPARTMENT OF VETERINARY CLINICAL SCIENCES + VTH ROF CODINA		
Course on Qualifying to Run an X-ray Diagnosis System Device (speciality in veterinarian X-ray diagnosis)	28	30
Course on Basic Horse Care	200	60
Course on The Mind of the Horse: theory and applications	120	20
Practical Course on Pet Bandaging	30	12
IV Practical Course on Cardiovascular Examination in Small Animals	24	30

TITLE OF COURSE	NUMBER OF PARTICIPANTS	TOTAL NUMBER OF HOURS IN THE COURSE
VTH ROF CODINA		
Workshop on Laparoscopic Surgery	12	30
DEPARTMENT OF ANIMAL PATHOLOGY		
Introductory Course on Bovine Surgery	100	10
XIV International Congress of the Mediterranean Federation of Ruminants Health and Husbandry Specialists (FEMESPRUM) "20 Years of Buiatry"	150	30
Course on Ultrasound Scanning Applied to the Reproduction in Cattle (5 courses)	7/curso	8/curso
Conference on Swine Vesicular Disease	20	4
DEPARTAMENT OF MICROBIOLOGY (*E. COLI* REFERENCE LABORATORY)		
Scientific Conference: Advances in Microbiology, Immunology and Molecular Biology	200	60
DEPARTMENT OF ANALYTICAL CHEMISTRY, NUTRITION AND BROMATOLOGY		
Course on Nutrition and Exercise for Health	160	30
DEPARTMENT OF PHARMACOLOGY		
Lecture on Veterinary Pharmacovigilance	50	1
DEAN'S OFFICE		
I Conference on Financial Management of Porcine Farms	40	60
III Conference on Career Guidance in Veterinary Medicine	150	20
Conference on Infectious Bovine Rhinotracheitis (IBR)	40	8
I Conference on Husbandry and Animal Welfare in Porcine Farms	150	15
Conference on Bovine Feeding	40	5
Course on Dog Grooming	18	30

TABLE 41. Courses Organised at the Faculty by Outside Entities in the Most Recent Years (2006 and 2007)

TITLE OF COURSE	ORGANISING INSTITUTION	NUMBER OF PARTICIPANTS	TOTAL NR. OF HOURS IN THE COURSE
Theoretical/Practical Course on Abdominal Ultrasound Scanning in Small Animals	*Association of Small Animal Specialist Veterinarians (AVEPA)*	21	**20**
Conference on Control and Eradication of IBR	*Official College of Veterinarians (Lugo)*	191	**8**
Technical Conference on Bovine Mastitis	*Elanco Animal Health*	120	**4**
Workshop on Disinfection of Swine Farms	*Galician Association of Porcine Veterinarians (AGAVEPOR)*	30	**4**
Course on Rabbit Pathological Diagnosis	*Elanco Animal Health*	30	**5**
Conference on Sustainable Development	*CAF Student Association*	65	**30**
Conference : Research work: From the laboratory to the classroom	*APIP Student Association*	140	**30**
Conference on Orthopaedics Surgery on Small Animals	*International Veterinary Student Association (IVSA)*	97	**20**
Conference on Milk Quality	*Ovejero Laboratories*	100	**2**
V Conference on Dairy Cattle	*Food & Agriculture Services (SERAGRO)*	400	**20**
Course: Expert in Livestock Farm and Agricultural Processing Industry Management (2006)	*Agricultural Biodiversity and Rural Development Institute (IBADER)*	180	**8**
Practical Course on Necropsy in Cattle (2006)	*Galician Veterinarian Forum*	24	**15**
I Conference on Ruminants Medicine (2006)	*Spanish Association of Specialists in Bovine Medicine (ANEMBE)* &- *International Veterinary Student Association (IVSA)*	50	**15**
Seminar on Milk Quality (2006)	*Intervet laboratories*	200	**6**
XI Seminar on Cattle (2006)	*Intervet laboratories*	130	**8**
Lectures: Sport Horse Training & Respiratory Disease in Sport Horses (2006)	*Equestrian Sport Foundation*	50	2

Indicate the involvement of teaching staff at the establishment involved in continuing education organised by outside organisations.

Teaching staff at our Faculty and the VTH are very frequently involved in Continuing Education activities organised by outside entities. For example, they participate in the activities organised by Associations of private Practitioners, other public organisms, the Official Colleges of Veterinarians, etc. This is mainly the result of the good relationships existing among our Academic Staff and the different professional associations, public bodies, private companies, etc.

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 distance learning *via* Internet, although the VTH is involved in the design of a new intra-net based on real clinical cases to be used for students' self learning. In addition, many subjects use the *USC virtual* (WebCT) platform as an important instrument for teaching and tutorial tasks.

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.

Continuing Education is one of the secondary objectives of our Faculty that still is not fully developed. There may be several reasons for that:
a) Lack of tradition: For years, Spanish universities have focused on Undergraduate and Postgraduate education (leading to Master's and PhD degrees). Continuing Education, as a part of the University's interaction with society, was usually considered a task for which the University was not really responsible. This inertia is difficult to overcome.
b) Lack of academic recognition: Continuing Education has not been a high priority for university leaders and thus, the time and effort that professors spend on these activities have been not suitably recognised.
c) Lack of time: Academic staff is deeply involved in teaching and research; their full time dedication to their work leaves them little time for anything else.

d) Logistic difficulties: The USC does not provide very good support for the organisation of these activities, and the administrative and management tasks usually require too much effort.

Nevertheless, over the last few years, our Teaching Staff has made a great effort and have participated, inside and outside the Faculty, in Continuing Education events organised not only for Veterinarians, but also for other professional groups. The rather high participation of Veterinarians in the CE activities proposed means that there exists a real need for them. Our Faculty is highly qualified to be a leader in this field because of the wide spectrum of research and teaching activities developed in the 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 (AVEPA, AEVEE, ANEMBE, ESAVS)
2. Student Associations (APIP, CAF, IVSA)
3. Administration (State Laboratory for Animal Health in Lugo, Galician Ministry of Health, Galician Ministry of Agriculture, Galician Ministry of Environment, Galician Ministry of Fisheries)
4. Pharmaceutical Industries (*Laboratorios Elanco, Esteve, Fatro-Uriach, Schering-Plough, Pfizer, etc*)
5. Human Hospitals (*Hospital Xeral-Calde, Centro Hospitalario de Ourense, Policlínico Lucense*)
6. Zoological Parks and Wildlife Rehabilitation Centres (*Centro de Desenvolvemento Sostible O Veral)*
7. Other Faculties and schools in our University (Medicine, Pharmacy, Higher Polytechnic Agricultural School).

The provision of those Continuing Education 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 traditional veterinary topics (Clinics, Animal Production and Food Science), but also to newly developing topics such as Environmental Issues, Wildlife, Implications for Veterinarians in Public Health and Food Safety (from Disease Control to Food Traceability) and many others.

3. SUGGESTIONS

- One of the aspects that might be more readily addressed is the idea that the administrative and logistic tasks need to be facilitated to the teachers. On many occasions, Continuing Education courses have been the consequence of individual initiatives and not a collective aim. This is one of the causes of the many organisation difficulties. We propose the creation of a new specific Committee for Continuing Education, with the participation of the different Departments.
- Professional Associations, the Administration, private companies, Veterinary practices, etc. should emphasize the need for Veterinarians to keep up-to-date in

their expertise by recognising 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. The future improvement of this aspect is a must. Moreover, the expansion of Continuing Education programmes focused on overseas students should be taken into account for future interventions.
- The participation of Veterinarians in Continuing Education courses in Spain may not be as high as in other EU countries. This is probably due to the fact that in our country it is not compulsory to carry out such postgraduate training in order to practice. Undertaking these courses is thus optional and, therefore, it is only done by Veterinarians who are very interested in keeping themselves up-to-date or in increasing their knowledge in a certain area.
- Nationally structured Continuing Veterinary Education should be provided on a collaborative basis with educational and professional groups working to deliver relevant and necessary courses in an efficient way.

12. POSTGRADUATE EDUCATION

CHAPTER 12. POSTGRADUATE EDUCATION

1. FACTUAL INFORMATION

Undergraduate students are usually able to finish writing their so-called *Tesina* (a short investigative research paper that has not previously been published) in a year, working part-time. Their research is supervised and guided by the PhD holding Professors at the Faculty. Students desiring to start their PhD studies commonly carry out this type of work as an introduction to research. Once finished, the work is publicly presented to a Committee of Experts, and after approval, a special mention is included on their Diploma. Around 10% of students obtain this title. However, many others are passing over this traditional first step into the world of research, in order to do their Diploma in Advanced Studies (DEA) (see below.)

The USC offers specialised training through Continuing Education, Postgraduate courses, Third Cycle (PhD) Programmes and Official European Postgraduate Programmes (POP) to complete Undergraduate studies and maintain the information level and competitive skills of its graduates.

- **Continuing Education**: Short-term studies aimed at Continuing Education or topics of very specific specialisation. They may be Basic courses (1-3 credits), Improvement courses (3-10 credits) and University Expert courses (≥ 10 credits). Participation in these courses, as described in Chapter 11, leads to a Participation Diploma.

- **USC Postgraduate studies (Official USC Postgraduate Qualifications)**: Aimed at the training of specialists who obtain a USC Diploma:
  - **Specialist Courses**: minimum 20 credits (see 12.2.1.a).
  - **Masters**: minimum 50 credits in one academic year (see 12.2.1.b).

- **Third Cycle (PhD) Programmes**: These studies are structured into two phases:
  1. **Training Stage**: minimum 32 credits (320 hours) in two academic years:
     a. **Learning Period:** where the student must take and pass several courses from his/her PhD programme (200 h in one academic year); once s/he has finished, s/he is issued a Certificate of Approval for this learning period.
     b. **Research Period**: Once the acquisition period has been completed, the PhD student has to develop one or more experimental research projects called "*Traballo de Investigación Tutelado"* (Supervised Research Work) under the supervision and guidance of one of the PhD teachers at the Faculty. This accounts for a minimum of 12 credits. This period usually takes around 1-2 years for a full time student, but frequently this Research Project turns into the Introduction for a student's Doctoral Thesis (Dissertation).

At the end of these two periods (learning and research), the student must publicly defend his/her work before a Committee formed by Professors who are specialised in the corresponding discipline. A successful presentation means the student will earn the ***Diploma in Advanced Studies*** (DEA), which implies the recognition of Proficiency in Research. All the work leading to complete a DEA usually takes 2-3 years for a full-time student. See enrolment figures for this Training stage in Tables 43 and 44.

2. **Doctoral Thesis (Dissertation) Stage**: The student has to carry out a complete original Research Project under the direction of one or more of the PhD teachers at the Faculty. Once it is finished, the work must be publicly defended and approved by a Committee of five specialists. This period usually takes at least two years for full time students who already have the DEA. See enrolment figures for this stage in Table 45.

12.1: POSTGRADUATE CLINICAL TRAINING (INTERNS & RESIDENTS)

Indicate whether students involved in this training receive a grant or a salary. Indicate any programmes that are certified by a European Speciality College.

The VTH offers a total of 20 Internships for Veterinary graduates, both in small (17 Interns) and in large animals (3 Interns). These Interns actively collaborate in all the Clinical Services of the VTH, namely Medicine, Surgery, Anaesthesia, Emergencies and Hospitalisation (including 24h guard duties in the VTH Emergency Service). They are always under the supervision of senior Clinicians. The candidates are selected for these positions based on their *Curriculum Vitae*. Interns acquire additional Postgraduate training by means of seminars, rounds, clinical sessions, etc. During this two-year period, the Interns also receive a salary from the VTH.

The VTH has two Diplomates (one in ECAR and the other in ECVCP), but currently no European Specialty Colleges Residency Programmes are underway. The first step in the near future will be to establish an Internship programme certified by the European Board of Veterinary Specialisation; only then can we take the next one and set up a Residency Programme in the areas mentioned above.

The VTH also offers private Practitioners and Postgraduate students the possibility to come and participate, for a three-month period, in the Service or Specialty of their interest so as to encourage permanent training in whatever activities are being carried out. These short term placements promote Postgraduate Continuing Education and interaction between Practitioners and VTH Clinicians.

12.2: POSTGRADUATE COURSES TAUGHT

In this section, we will describe the Official Postgraduate Qualifications offered and officially recognised by the USC (Specialization Courses and Masters). These are specialised courses, organised and taught by our Faculty, which are aimed at Postgraduates with a desire to better complete their academic training.

TABLE 42. Postgraduate Courses Taught (Course 2005-06)

	Duration of Training	Number Enrolled	
		Full time	Part time
(a) Diploma level (Discipline) 1. Specialisation Course on Laparoscopic Surgery [(a)]	360 hours	12	
(b) Masters level (Discipline) 1. Master in Pet and Exotic Clinic [(b)]	720 hours	12	
2. Master in Laboratory Animal Research [(c)]	740 hours	-	
3. Master in Toxicology Work [(d)]	697 hours	-	

[(a)] Organised by the Department of Veterinary Clinical Sciences and the Department of Human Surgery (USC).
[(b)] Organised by the Department of Veterinary Clinical Sciences.
[(c)] Organised by the Veterinary Faculty, Department of Physiology, Department of Anatomy & Animal Production and Department of Veterinary Clinical Sciences.
[(d)] Organised by the Veterinary Faculty.

The *Specialisation Course of Laparoscopic Surgery* allows Professionals to train in the field of general and gastrointestinal surgery and also allows Veterinarians to practice laparoscopic surgery. The Master in *Pet and Exotic Clinic* offers Veterinarians the possibility of updating and increasing their knowledge in different Medicine specialties in pet and exotic animals. The Master in *Laboratory Animal Research* is focused on topics related to animal behaviour and welfare so as to guarantee the adequate management and care for the vertebrate animals used in research. The Master in *Toxicology Work* focuses on the prevention of risks at work and the surveillance of workers exposed to chemical agents. This Master includes E-learning (370 hours) and practical sessions in external companies.

With USC approval, the Faculty is submitting a new Master in *Food Safety* to be developed in 2008. This Master lasts one year = 60 ECTS (1,500 hours) and was designed to help increase students' knowledge and skills when dealing with legislation and control systems in order to assure quality and safety in food; with certification of farms; with new technologies so as to obtain, process, and preserve food; with

microbiological diagnosis and quality management of food and foodstuff; and with risks at work and their prevention in the Food industry.

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

Students usually do not receive a salary, but they can apply for scholarships (see Table 48).

As shown in Table 42, most of the Postgraduate Courses on the Diploma and Master Level are organised by the Department of Veterinary Clinical Sciences, and the clinical training implication is 100%.

12.3: POSTGRADUATE RESEARCH PROGRAMMES

For each (a), (b) and (c), please indicate:
(i) Whether the students require a grant or salary
(ii) The proportion of graduates who enter such a programme.

Currently, there are two ways to obtain a PhD Degree: One of them is to complete a PhD Programme and the other is to finish an Official European Postgraduate Programme and then write a Doctoral Thesis (Dissertation).

The Veterinary Faculty organises and participates in several Postgraduate Research Programmes. Since the PhD Programme is the responsibility of the Departments, usually each Department organises one or more of these Inter-faculty Programmes. Currently, there are two PhD programmes which are organised by the three Departments based in the Veterinary Faculty, and which are taught mostly by the Academic Staff of these Departments. The Inter-Faculty Department Units generally participate in the PhD programmes organised by their own Departments.

TABLE 43. Postgraduate Research Training Programmes
(Courses offered in the Training stage of Veterinary Science PhD Programmes. 2005-06)

(a) Masters Level / DEA (Discipline and/or Department is indicated.)	Duration of Training	Number Enrolled	
		Learning Period	Research Period
1. Basic and Applied Research in Veterinary Sciences [a]	**2 year**	**14 ***	**7***
1.01 Artrology and Articular Surgery	30 hours	13	
1.02 The Vomeronasal System of Mammals as a Model in Basic Research	30 hours	4	
1.03 Basic Laboratory Techniques in Macroscopic and Microscopic Anatomy	30 hours	10	
1.04 Animal Welfare	30 hours	4	
1.05 Anaesthesia, Monitorisation and Pain Control in Experimental Animals	30 hours	13	
1.06 Diagnostic Imaging in Animal Research	30 hours	13	
1.07 Pathological Anatomy Applied to the Study of Diseases in Animal Research	30 hours	12	
1.08 Experimental Protocols in Animal Metabolism	30 hours	1	
1.09 Animal and Biological Sample Handling in Research Protocols	30 hours	5	
1.10 Veterinary Dermatology	30 hours	10	
1.11 Control and Management of Animal Health	30 hours	1	
1.12 Bibliographic Database, Web Sites and Veterinary Software Practice	30 hours	9	
TOTAL			

[a] Department of Anatomy & Animal Production + Department of Veterinary Clinical Science + Department of Animal Pathology.
* Total number of students enrolled (a student has to be enrolled in 200 hours of coursework)

(a) Masters Level / DEA (Discipline and/or Department is indicated.)	Duration of Training	Number Enrolled	
		Learning Period	Research Period
2. Introduction to Research in Medicine and Veterinary Health [b]	**2 year**	**16***	**12***
2.01 Antigen Obtention and Its Application to Parasitical Diseases Diagnosis	40 hours	5	
2.02 Prevention and Control Programmes for Parasitic Process in Farm Animals	40 hours	11	
2.03 Infection Models in Experimental Parasitology	40 hours	4	
2.04 Notions and Methods in Epidemiology: Use of informatics in animal health	40 hours	5	
2.05 Study of Metabolic Profile in Ruminants	60 hours	12	
2.06 Study of Mineral Metabolism in Domestic Animals	40 hours	14	
2.07 Reproductive Biotechnologies Applied to Veterinary Medicine	30 hours	10	
2.08 Applications of Ultrasound Scan to Bovine Reproduction	30 hours	12	
2.09 Design of Experimental Procedures in Pathology, Necropsy Procedure and Sampling in Mice	30 hours	0	
2.10 Introduction to Animal Experimentation	60 hours	0	
2.11 Inmunohistochemistry Applied to Veterinary Diagnosis	30 hours	0	
2.12 Electronic Microscopy Applied to Veterinary Diagnosis	30 hours	0	
2.13 Development and Application of Methods for Toxicity Evaluation	30 hours	0	
2.14 Quality of Animal Origin Products	40 hours	1	
2.15 Problems Associated with the Presence of Bacterial Pathogens, Fungi or Its Toxins in Food	40 hours	1	
2.16 Molecular Methods of Characterization and Food Control	30 hours	0	
2.17 Food Additives Production by Fermentation Processes	30 hours	0	
2.18 Assessment of Critical Control Points: Practical Application in Agroalimentary Industries	40 hours	0	
2.19 Biodiversity and Conservation of Marine Meiofauna	30 hours	1	
2.20 Animal Behaviour and Management of Cattle: Animal welfare and improvement of product quality	30 hours	3	
2.21 Approaches for Control of Infectious Diseases in Cattle Herds	40 hours	4	

[b] Department of Animal Pathology

* Total number of students enrolled (a student has to be enrolled in 200 hours of coursework)

Of the 49 Postgraduate students enrolled in these PhD Programmes, 86% are Veterinary graduates (42). They are mostly USC graduates; there are nine from other Spanish Universities and one EU student. Only 6 (12%) of the students carrying out this Training received a scholarship.

TABLE 44. Postgraduate Research Training Programmes

(Courses offered in the Training stage of the PhD Programmes in which other Departments at the Veterinary Faculty Participate. 2005-06 Academic Year)

(a) Masters Level / DEA (Discipline and/or Department is indicated.).	Duration of Training	Number Enrolled*	
		Learning Period	Research Period
3. Agricultural and Forestry Research (c)	**2 year**	**8**	**0**
3.01 Phytopathological Diagnosis in Forest & Agricultural Plants: Using molecular techniques based on the analysis of nucleic acids	30 hours	5	
3.02 Cattle Breeding and Genetics	40 hours	0	
3.03 Methods for Measurement, Elaboration and Modelling of Humidity and Radiation Data in Cultivated Soils	30 hours	1	
3.04 Application of Arbuscular Mycorrhiza in Agriculture	30 hours	0	
4. Biochemistry and Molecular Biology(d)	**2 year**	**7**	**0**
4.01 Signal Transduction Systems: Basic Concepts and Research Methodology	50 hours	1	
5. Biodiversity and the Conservation of the Natural Environment (e)	**2 year**	**20**	**0**
5.01 Biodiversity and Conservation of Marine Meiofauna	30 hours	5	
6. Food: Nutritive Value, Technology and Food Safety (f)	**2 year**	**4**	**4**
6.01 Quality of Animal Origin Products	40 hours	3	
6.02 Problems Associated with the Presence of Bacterial Pathogens, Fungi or Its Toxins in Food	40 hours	1	
6.03 Molecular Methods of Characterization and Food Control	30 hours	2	
6.04 Hygienic /Technological Problems of Meat and Derivatives	30 hours	2	
6.05 Food Additive Production by Fermentation Processes	30 hours	2	
6.06 Analysis of Danger and Control & Checkpoint (APPCC). Practical applications in agricultural industries	40 hours	2	
7. Marine Biology and Aquaculture (g)	**2 year**	**10**	**10**
7.01 Implementation of Pathological Anatomy in the Study of Fish Diseases	30 hours	2	
7.02 New Valuation Techniques and Removal of Diarrheic Toxins (DSP)	30 hours	0	
7.03 New Valuation Techniques and Removal of Paralyzing Toxins (PSP)	30 hours	0	
7.04 Biodiversity and Conservation of Marine Meiofauna	30 hours	1	
7.05Conservation Gene	70 hours	0	

* Number of students from all the USC Faculties enrolled
(c) Department of Plant Production
(d) Department of Biochemistry & Molecular Biology
(e) Department of Animal Biology
(f) Department of Analytical Chemistry, Nutrition & Bromatology
(g) Dept. of Animal Biology; Dept. of Basic Biology; Dept. of Pharmacy & Pharmaceutical Technology; Dept. of Physiology.

The courses from the Postgraduate Programmes mentioned in Table 44 are taught by Veterinary Faculty staff. However, the main Departments are based in other USC Faculties; the students enrolled come mostly from other Faculties.

TABLE 45. Postgraduate Research Training Programmes
(PhD level within Veterinary Science PhD Programmes. 2005-06 Academic Year)

(b) PhD Level (Discipline and/or Department is indicated.)	Duration of Training	Number Enrolled	
		Full time	Part time
Dept. Anatomy & Animal Production	2 year	0	2
Dept. Animal Pathology	2 year	7	30
Dept. Clinical Veterinary Science	2 year	6	12
TOTAL		**13**	**44**

There are two PhD programmes for which the three Departments based in the Veterinary Faculty are completely responsible (Table 45). Of the 57 students enrolled in these PhD programmes, 49 are Veterinary graduates (86%). Students do not receive a salary, although the majority of Postgraduate students have a Fellowship (from institutions or from a Research grant/project). Only 9% (5 students) received a grant.

In 2005-06, a total of 127 students graduated in our Faculty; thus, the 49 Veterinary graduates that started their PhD amount to 38.6% of the total graduates that year. However, this calculation might be an overestimation because when a student is admitted to the Postgraduate Programme the year in which s/he finished his/her Undergraduate Programme is not recorded. Thus, in this calculation it is likely that we have unwillingly included students graduating before 2005-06.

TABLE 46. Postgraduate Research Training Programmes
(PhD Programmes with a Quality Mention (*Mención de Calidad*). 2005-06 Academic Year)

(c) Other PhD level Degrees (The Discipline and/or Department is indicated.)	Duration of Training	Number Enrolled	
		Learning Period	Research Period
1. I.P. Endocrinology [h]	**2 year**	**11**	**0**
1.01 Animal Models in Endocrine Pathology: Transgenic animals	30 hours	4	
1.02 Neuroendocrinology	40 hours	6	
2. I.P. Neuroscience [i]	**2 year**	**13**	**0**
2.01 Neuroendocrinology	50 hours	1	
2.02 Neuropharmacology	40 hours	6	
2.03 The Secondary Olfactory System of Mammals as a Model of Basic Investigations in Neuroscience	30 hours	0	

[h] Department of Physiology.
[i] Department of Cellular Biology and Ecology.

The Inter-University Programme (IP) of two Galician Universities, with a Quality Mention in which Academic Staff from the Veterinary Faculty participate, is shown in Table 46.

2. COMMENTS

Comment on the number of postgraduate diplomas/titles awarded annually. Comment on the percentage of veterinarians participating in postgraduate research training programmes.

It is true that having graduates increases the demand for Postgraduate Studies **(Masters** and **Specialisation courses)** in order to develop research and/or expertise in the Business sector and not just for a career in Teaching. Yet, traditionally, the PhD Degree has merely been a formative stage in the long line of requirements necessary to undertake a career in University Teaching. As a result, the poor prospects for future job placement have led to a certain drop in the interest students seem to have in this type of coursework. The increase in the opportunities that PhD holders have to achieve better positions in jobs that require a high level of expertise has been the one factor which has helped to remedy the situation.

Moreover, the possibilities for students to successfully complete Postgraduate Studies are highly dependent on if they are able to obtain adequate funding or not. Hence, the inherent and increasing difficulty in securing a scholarship works against the incorporation of new Postgraduate students. However, perhaps the possibility of carrying out the Diploma in Advanced Studies (DEA) can help to revitalize the students' interest in PhD programmes.

The evolution of the number of students enrolled in Postgraduate Studies since 1998 is listed below (Table 47). Also shown in this Table are the Diplomas in Advanced Studies (DEA) and Doctoral Theses (Dissertations) defended at the Faculty which have been directed and supervised by Professors from the Veterinary Faculty.

TABLE 47. Evolution of Number of Students Enrolled in Postgraduate Research Programmes

Course	No. Enrolled Teaching Period	No. Enrolled Research Period	Approved DEA*	No. Enrolled PhD Level	Approved Doctoral Thesis (Dissertation)	Approved European PhD Thesis (Dissertation)
1999-2000	20	20	7	-	7	0
2000-2001	17	26	6	30	10	0
2001-2002	37	55	13	51	9	1
2002-2003	24	50	21	39	6	0
2003-2004	17	41	15	50	2	0
2004-2005	21	36	11	56	5	0
2005-2006	30	49	14	57	14	1
2006-2007	26	56	0	48	7	1

* Proficiency in Research

From these data, an average of 11 DEAs and 9 PhD Theses (Dissertations) are approved annually; this in turn represents approximately 15% of the graduates.

In the PhD programmes of "Basic and Applied Research in Veterinary Sciences" and "Introduction to Research in Medicine and Veterinary Health", approximately 90% of our PhD students are Veterinarians. In other PhD programmes the percentage of Postgraduate students who are Veterinarians is quite low.

3. SUGGESTIONS

We believe in fostering the market and social awareness value of Postgraduate Studies and Postgraduate Degrees, in which we should include the DEA because it is a good starting point. This would increase the demand businesses have for Specialists or Professionals with Postgraduate Degrees, and consequently, would increase the students' demand for this kind of teaching. Therefore, we must develop an integrated Postgraduate proposal, one that is versatile and efficient for the various types of studies and the differing expectations associated with them:

- PhD Programmes for University and/or Research staff
- Masters and Specialisation Courses for Professionals
- DEAs as a point of departure.

For our Postgraduates Studies proposal, it is important to attract students not only from Galicia, but also from all over Spain and abroad. This requires pursuing scholarships not only on a National level but also ones provided by private agents. Institutional arrangements with Universities, government authorities and companies might also need to be encouraged.

It is important to increase the number of Postgraduate Courses taught by our own Faculty Staff. Currently, this aim is difficult to improve because of the shortage in teaching staff due to the time requirements of our Undergraduate training course. It is up to the USC to improve the recognition of those teachers participating on a Postgraduate level. However, the Departments also have the responsibility to improve the organisation, consistency, and utility of the programmes offered, as well as the interaction amongst those teachers involved in the different Postgraduate Programmes.

Finally, it is necessary to maximise the quality of these Postgraduate Programmes by linking them to relevant research. In the immediate future, our Faculty will combine all the PhD programmes into an Official European Postgraduate Programme (POP) on "Research in Veterinary Science", in which all the areas in the Veterinary profession will be integrated.

13. RESEARCH

CHAPTER 13. RESEARCH

1. FACTUAL INFORMATION

Indicate the involvement of undergraduate students in research, including the time spent, percentage of students involved and outcome required.

In Spain, the General Direction for Universities (a branch of the Ministry of Education and Science, MEC) and the Youth Institute (Ministry of Labour and Social Affairs) annually summon the "**Awards for Young Investigators**" with the objective of encouraging research by awarding grants to the best unpublished research works. Students from High Schools, Technical Schools and Undergraduates enrolled in their first year can participate in this event. The research presented must be an unpublished research project carried out under the guidance and supervision of a coordinator.

In addition, every year the MEC, through the Secretary of State for Education and Universities, encourages students to apply for what are known as "**Collaboration Scholarships**". Their aim is to enable students doing their final year of University studies to collaborate in a Research project run by a University Department. The timetable can be made to be compatible with their class schedule and, in this way, they initiate research activity that is directly linked to what they are studying. The academic requirements requested from the student are that they must have successfully completed the entire first cycle and more than 45% of the second cycle. Students apply by submitting a collaboration proposal supervised by the Tutor/Teacher and approved by the Department Council where it will be carried out. Students who are given these scholarships must dedicate three hours *per* day to this collaboration (15 hours *per* week) for the duration of the scholarship (total 450 hours). In 2007, the scholarship amounted to 2,550 €/student. Five of these collaboration scholarships were awarded in our Faculty in the 2006/07 academic year and seven in 2007/08.

In our Faculty, the current curriculum allows students to obtain up to a maximum of 10 elective credits and 10 optional credits by engaging in fieldwork in other entities—public and private institutions, etc—with the equivalence 30 hours = 1 credit. Thus, since a student has to take a total of 40 elective credits and 40 optional credits in the curriculum (see Chapter 4), one way to obtain these credits is by doing this extramural practise. However, this elective/optional practise is voluntary and does not have anything to do with the *Obligatory extramural fieldwork* that is a mandatory (core) subject (*Estancias*) (for details see Chapter 4).

In the Faculty we are also developing the "**Academically Supervised Work"** (ASW, *Traballo académicamente dirixido*). A student must work approximately two months full time (=10 elective/optional credits) on the ASW. The possible areas of interest are proposed by the Departments along with the academic requirements, the number of places offered, the professors responsible for their tutoring, etc.

Regarding Undergraduate research, our Curriculum also contemplates the possibility for students to obtain up to 10 optional credits through their active participation in Scientific Congresses, Courses, Seminars, etc. For example, a student has the possibility to take 10 optional credits practising on-the-job in a Veterinary business, 10 optional credits carrying out a ASW, 10 optional credits attending academic activities (Congresses, Meetings, Courses, etc.) or 10 credits training in elective subjects offered by the USC as part of the 40 total optional credits required in our curriculum.

In addition to these mechanisms which are officially recognised for Curriculum purposes, the students may voluntarily apply to carry out research in collaboration with one of the numerous research groups in the Departments. Although, they do not receive any academic credits *per se* for this activity, it does enable them to become acquainted with research methodologies. Finally, as stated in Chapter 12, around 10% of our graduates produce an unpublished research work (***Tesina***). Most of them initiated this research paper during their final years of Undergraduate study.

2. COMMENTS

Comment on the opportunities for students to participate in active research work.

The many mechanisms described above provide ample opportunities for our students to get involved in active investigative research.

All the Departments welcome these new Undergraduate students who, more often than not, are particularly enthusiastic about research work. Once they have started, students tend to stay in these Departments during their Postgraduate training as well. This close relationship often culminates in the realisation of their Doctoral Thesis (Dissertation) which allows them to obtain their PhD and reach full researcher status.

In the 2006/07 academic term, a new Students' Association composed of Undergraduate students was founded in our Faculty: the "**Association for the Promotion of Undergraduate Research Activity**" (APIP). In addition to collaborating in various activities carried out by the Faculty, APIP organised the "*I Conference Meeting: Research Work: from the laboratory to the classroom*" both to publicise the numerous research projects which are underway in the Departments at our Faculty, and also to promote and encourage students to participate in these activities.

Unfortunately, our Curriculum is full time and consuming and students do not usually have enough time to get properly involved in investigative research.

3. SUGGESTIONS

Will students be given more opportunity to participate in research activities? If so, how will this be done?

As stated before, academic obligations are so demanding that it can be hard for students to see research as a priority. Undergraduate students who want to participate in research activities can apply for a Fellowship. When they graduate, they can participate in a Postgraduate Programme. The scholarships and contracts assigned in 2007 (corresponding to academic years 2006/07 and 2007/08) are shown in Table 48. We have also had a substantial number of Doctoral Thesis (Dissertations) defended at the Veterinary Faculty over the last few years (for details see Chapter 12).

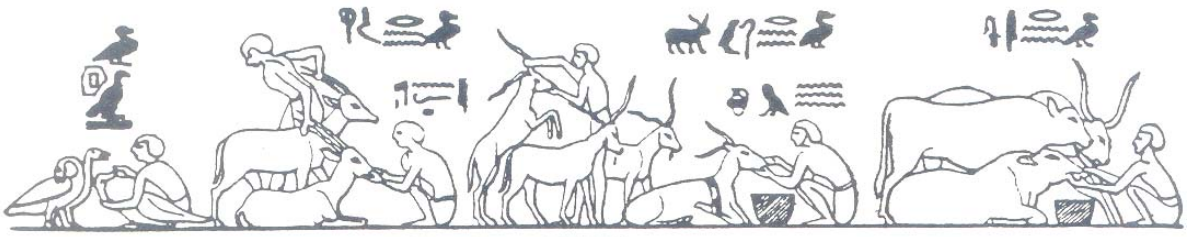
TABLE 48. Scholarship and Contracts in 2007

	Scholarships / Contracts
PFPI Scholarships	0
PFPU Scholarships	1
PFPI Contracts	1
PFPU Contracts	2
Postgraduate Scholarships	-
Collaboration Scholarships	12
Postgraduate Fellowships	2
Post-doctoral Fellowships	-
Hired by contracts and projects	30
María Barbeito Contracts	4
Parga Pondal Contracts	5
Others (National awards, *Juan de la Cierva*, BII, BPI, ...)	1
TOTAL	**58**

To increase student involvement in research, we propose the following measures:

- The number and financial amount of collaboration scholarships should be increased.
- Open houses should be held for the Research Groups to be able to explain their ideas and projects to other students (i.e. conference organised by APIP, see 13.2).
- The participation of students in research tasks should be recognised as elective or optional credits in the curriculum. (This is currently being developed with the offer of ASW).

However, the lack of support staff and laboratory technicians devoted to research makes it harder to achieve these goals. In addition, students find it difficult to carry out tasks which are not compulsory in the syllabus because of their heavy course load which forces them to spend almost all their available time attending theoretical and practical lessons and studying for their exams.



LIST OF ACRONYMS USED

LIST OF ACRONYMS USED

(ACSUG) Galician Agency for University Quality Assurance and Accreditation

(ANECA) Spanish Agency for Quality Assurance and Accreditation

(APIP) Association for the Promotion of Undergraduate Research Activity

(ASW) Academically Supervised Work

(BC) Bioethics Committee

(B.O.E.) Spanish Official News Bulletin

(BUGalicia) Consortium of Galician University Libraries

(BUSC) USC's Central Library on the Lugo Campus

(CACTUS) Centre for Scientific & Technological Support

(CCSU) Coordination Council of Spanish Universities

(CeTA) Centre for Learning Technologies

(CSN) Nuclear Security Council

(DEA) Diploma in Advanced Studies

(EAEVE) European Association of Establishments for Veterinary Education

(ECAR) European College of Animal Reproduction

(ECVCP) European College of Veterinary Clinical Pathology

(ECTS) European Credit Transfer System

(EEC) European Economic Community

(ESHE) European Space for Higher Education

(EU) European Union

(FVE) Federation of Veterinarians of Europe

(ICE) Institute of Learning Sciences

(IP) Inter-University Programme

(IT) Information Technology

(LOU) University Organic Law

(LRU) Law on University Reform

(MAAD) Manual for the Evaluation of Teaching Activity

(MEC) Ministry of Education and Science

(MC) Monitoring Committee

(MH) *Matrícula de Honor* (Highest Mark in Grading System in Spain)

(PAAU) University Entrance Exam

(PBL) Problem Based Learning

(PI) *Personel Investigador* (Research Scholars)

(SEPIU) Service for Participation and Integration (of the Disabled)

(TEAC) Teaching Affairs Committee

(UDC) University of A Coruña

(UNED) Distance Learning University in Spain

(USC) University of Santiago de Compostela

(UTPR) Radiological Protection Technical Unit

(UV) University of Vigo

(UXA) Academic Registrar's Office

(VTH) Veterinary Teaching Hospital

(XUNTA) the Autonomous Government of Galicia

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ACKNOWLEDGEMENTS

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