



UNIVERSITY OF ZARAGOZA



VETERINARY FACULTY

ZARAGOZA

SELF EVALUATION REPORT
EAEVE VISIT, FEBRUARY 2006



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INTRODUCCIÓN

INTRODUCTION

The Faculty of Veterinary Science was founded in 1847 (19th August) and is presently located on the Miguel Servet Campus in Zaragoza, a conference city thanks to its geographical location (half way between Madrid and Barcelona and close to the Somport Pyrenean axis) and the infrastructure it offers for such events. The distance between Zaragoza and other nearest Faculties (Madrid, Barcelona, Leon and Valencia) is such that the agricultural area of influence of the Faculty of Veterinary Science of Zaragoza stretches throughout Aragon, Navarra, The Basque Country, Cantabria, La Rioja, Soria, Guadalajara, Cuenca and Lérida.

The Faculty of Veterinary Science of Zaragoza was visited by the European Association of Establishments for Veterinary Education (EAEVE) in 1994. The 12 years which have passed since then have seen numerous changes to both the Faculty's organisation and infrastructure.

With regards to infrastructure, the most noticeable changes have been the building of the Veterinary Teaching Hospital, the Food Science and Technology Pilot Plant and the renovation of the Animal Experiment Support Service premises (including a new building for teaching with animals) not to mention other smaller, but nonetheless important changes such as the increase in the number of computer rooms, multimedia equipment for classrooms (computers and virtual teaching equipment), the increase in bibliographical resources in the library and many other details which have had a considerable effect on the appearance and working of the Centre. As far as road communications are concerned, the new ring road has been a great improvement.

With regards to organisational factors, the number of Teaching and Auxiliary Staff has increased whilst the number of students has decreased, in relation to the figures stated by the Examining Board, thus reaching more reasonable ratios.

The most outstanding change has, however, undoubtedly been the publishing of the new syllabus (passed on 2nd July 2002) and now practically in operation, in compliance to the 78/1027 regulation (OJ n. L362 of 23rd December 1978) in all aspects. This has called for a reorganisation of teaching areas, with annual subjects changing to semester and with more practical content, the introduction of optional subjects, (although the range of choices is limited) and a large number of credits for final year training in teaching hospitals.

The publication of the LOU (Ley Orgánica de Universidades 6/2001 of 21st December),(Organic University Law), has led to the reorganisation of the Spanish University System with the creation of the Agencia Nacional de Evaluación de la Calidad y Acreditación (National Agency for the Evaluation of Quality and Accreditation) providing new mechanisms to promote excellence. The new Law is intended to encourage research and development and the free movement of students and professionals, both within Spain and internationally, in addition to offering Universities greater self-government and modifying organisational systems. Thus, the Dean is now elected by universal voting with pondered votes from different sectors. At our University the Dean was elected in 2004 (Decree 71/2004 of 13th April) at the same time as other bodies in our Faculty, such as the

Central Board and Teaching Commission, with corresponding changes in the representation of the different sectors in accordance with the new law.

Within the realms of the autonomous government new University statutes were approved and the 116/2001 decree of the Government of Aragon was extended, after which the Basic Financial Model for the University was to be established. The LOSUA was approved (Law 5/2005 of 14th June for the Organisation of the University System in Aragón) enabling some of the dealings of the LOU to be developed locally and also leading to changes in our university system.

Other important steps taken were the adaptation of our Syllabus to the European Higher Education Space, the publishing of the Decree on European Credit for graduates and postgraduates and White Books for some subjects, including one for Veterinary Science, which would lead to changes in the general rules on accreditation in order to bring them in line with those established by the Bologna Statement (19th June 1999).

All in all we find ourselves amidst a period of change with new introductions and adaptations which will, in turn, bring about important changes to our organisation and teaching methods over the next few years.

A detailed analysis of the changes made in relation to the suggestions and deficiencies published in the Examining Committee's report from their 1994 visit would be advisable to see more clearly to what extent the deficiencies have been corrected over the last 12 years.

CORRECTION OF DEFICIENCIES

Based on suggestions made in the Final Report of the EAEVE after the visit to the Faculty of Veterinary Science of Zaragoza (22nd-27th November, 1994) *

- Student input has been reduced from 247 in 1994 to 155 at present, almost achieving the figure suggested by the Evaluation Team on their visit in 1994, although the number of places requested is 350% higher than places offered. It should be pointed out that the entry figure proposed by the Veterinary Faculty has to be approved by the managing council of the University of Zaragoza and ultimately by the Spanish University Council.
- The number of times a student is allowed to sit for any given exam has also been reduced from 3 to 2, by eliminating the December examination session, thus ensuring student's progress steadily and logically through their university studies.
- The number of hours of practical training has been increased considerably in the new syllabus.
 - The ratio of theoretical to practical hours is now **1:1.28**
 - The practical training calendar and allocation of training groups is controlled centrally by the centre secretary at the beginning of each academic year

* Final report of the visit of the European Association of Establishments for Veterinary Education (EAEVE) to the Faculty of Veterinary of Zaragoza (november 22nd 27th 1994), adopted by the Assesment Committee for Veterinary Teaching (ACVT) on january 17th 1997.

- 10 teachers have been employed to deal with external placements in the areas of: slaughterhouses, pig farming, pig clinic, sheep clinic, cow clinic, horse clinic and exotic animal clinic.
 - The number of hours spent on training in horse medicine and surgery has also been considerably increased
 - A Veterinary Teaching Hospital (VTH) with modern installations for small and large animals and central services has also been built.
 - A 24-hour clinic has been set up in the new VTH and a programme for residential students is being designed
 - The number of cases in which local vets approach the VTH has considerably increased.
 - There has been a large increase in the annual number of clinical cases
 - A Veterinary Medicine Department Building has been built with one floor dedicated to teaching laboratories
 - A company/university agreement for external placements has been established (UNIVERSA programme) providing 500 hours of training for students with local vets.
- Improvements in teaching methodology are constant. For instance the use of Internet for teaching purposes has increased greatly in three areas: (1) virtual campus, (2) G9¹ virtual teaching and (3) webs for specialised veterinary resources. Parallel to the increase in computer and new technology resources the number of better-equipped computer rooms in our Centre has also increased.

At present the Faculty of Veterinary Science of Zaragoza offers 23 courses on the Virtual campus:

- Basic mathematical knowledge	- General genetics
- Mathematics	- Genetics
- Chemical analysis	- Basis and applications of transgenesis
- Organic chemistry	- Chemical engineering
- Anatomy and veterinary embryology	- General pathology
- The economy and management of food companies	- Cardiovascular pathology of small animals
- Praticulture and forage preservation	- Nutritional pathology in small animals
- Pharmacology, pharmacy and therapeutics	- Infectious and epidemiological pathology
- Immunology	- Medical and nutritional pathology
- Parasitology	- Surgical pathology II
- General pathological anatomy	- Microbiology
- Public health and food	

The Faculty of Veterinary Science of Zaragoza participates in group G9 virtual teaching in the subject area of:

- Integral and sustainable rural development

¹ A group of 9 public universities: Cantabria, Castilla La Mancha, Extremadura, Balearic Isles, La Rioja, Navarra, Oviedo, Basque Country and Zaragoza.

Several teachers and technicians run a website:

- Specialised veterinary resources for hospital and clinical veterinary surgery at: <http://www.ciberconta.unizar.es/cirugiaveterinaria>
- and one on integral sustainable rural agriculture at: <http://www.cederul.org>

- The number of training courses for lecturers in teaching techniques run by the University has also increased, as has the number of lecturers from our Faculty who attend them. The Science Education Institute of the University of Zaragoza offers the following courses every year:

- Training activities for lecturers
- Programme for improvement and innovation in teaching
- Diploma in pedagogical training for University lecturers
- New resources in Information Technology

The bibliographical resources in the library have also improved, both regards the number of text books (24,750 at present) and scientific publications (442 titles in paper format and over 4000 electronically accessible). The library also has a videoroom with 513 videos. The Library Catalogue of Zaragoza University, along with the librarian information and management system “Innopac Millenium”, is used to locate and access resources.

In particular the number of Bibliographical and journal resources has increased since the degree in Food Science and Technology was introduced in the 1994-1995 academic year.

- The ratio of Research and Teaching Staff to Administrative and Services Staff has also increased from 1:0.53 in 1994 to 1:0.80. New administrative and services staff have been taken on in the VTH (3) and the Food Science and Technology Pilot Plant (3). Staff numbers are still the same in the secretary’s office and department offices (7) but have increased in the Animal Experiment Support Service (6) and the number of laboratory staff has increased (12) with respect to 1994. Staff involved in research projects, some of whom belong to the Regional Laboratory and the National Centre for Spongiform Encephalopathy (42), should also be considered. Administrative and Services Personnel ASP are centralised and are organised by the University and ASP University Management. However, a special Veterinary Faculty Service Plan to increase ASP numbers for each unit is about to be introduced.
- In the field of research, the Government of Aragon has introduced a scheme to group research scientists into interdisciplinary groups by creating so-called “Research Groups” which may be of the following types: for excellence, consolidated or consolidated for applied and new research. Several groups from our Faculty have been acknowledged under this scheme.
- A residential programme has been introduced at the Veterinary Teaching Hospital to provide 24-hour service, although some aspects of the programme are still at the development stage.
- Problems in the areas of labour safety have largely been solved if we compare 1994 to the present time. New laboratories complying with all safety standards have been built,

particularly for infectious diseases, which were previously not up to standard. A Central Laundry Service has been installed in the Faculty and procedures for the handling and transfer of samples, waste materials and bodies etc. have been brought in line. The Veterinary Faculty presently has a Security Regulation and Safety Instructions for laboratories which appear in the Titles Guide.

- The University of Zaragoza has created a Risk Prevention and Protection Unit for the areas of:
 - Ergonomics
 - Safety and Hygiene
 - Staff health control
 - Training activities related to the previous three areas.

A Health and Safety Committee has also been set up for the University of Zaragoza.

- A Strategic Plan drawn up by the Veterinary Faculty in 2003 is presently under development to deal with problems and decision making stemming from the vertical structure of departments and the lack of authority of staff dealing with students, teaching staff and the general public. Measures which should be taken to improve the flexibility and financial autonomy of the Faculty and procedures introduced to increase income for clinical and research services are also mentioned in the Strategic Plan.
- New Statutes were approved by the University of Zaragoza in 2004 which will lead to the following points being drawn up:
 - new guidelines and regulations for the Veterinary Faculty
 - new guidelines for the Centre Commissions and recognised bodies
 - new guidelines for individual departments
 - new established electoral rules
 - new guideline for teaching staff
 - new guidelines for one-person associated bodies
- A complete informative guide to the degree titles of the Faculty of Veterinary Science is available to students each academic year. The guide contains data about the situation and activity of the Faculty, organization of the centre, academic information, safety regulations, facts and figures on the Degree in Veterinary Science (syllabus, timetables and exam subjects).

In relation to further education and post graduate programmes:

- In the Faculty of Veterinary Science there are 5 PhD programmes:
 - Progress in agricultural and environmental science. (Coordinated by the Department of Agriculture and Agrarian Economy)
 - Food quality, safety and technology. (Noted for its Quality by the Ministry of Science and Education in 2004) (Coordinated by the Animal Production and Food Science Department)
 - Animal pathology: animal reproduction, medicine and surgery (Coordinated by the department of Veterinary Medicine)

- Animal Pathology: animal health (Coordinated by the Department of Veterinary Medicine).
 - Animal production (Coordinated by the Department of Animal Production and Food Science).
- In addition, members of the Veterinary Faculty teaching staff take part in 6 PhD programmes available to graduates in Veterinary Science and in coordination with departments in other Faculties.
- Pathological Anatomy, Legal and Forensic Medicine and Toxicology (Coordinated by the Department of Pathological Anatomy, Legal and Forensic Medicine and Toxicology).
 - Biomedicine (Coordinated by the Pharmacology and Physiology Department).
 - Molecular and Cellular Biology. (Coordinated by Department. of Biochemistry and Cellular and Molecular Biology).
 - Biochemistry and Molecular and Cellular Biology. (Coordinated by Department. of Biochemistry and Cellular and Molecular Biology).
 - Anatomical Basics in Clinical Issues (Coordinated by Dept. of Human Anatomy and Histology).
 - Microbiology, Public Health and Society (Coordinated by the Dept. of Microbiology, Preventive Medicine and Public Health).
- The Faculty of Veterinary Science offers postgraduate studies including:
- Master in Veterinary Acupuncture
 - Diploma in Specialized Hotel and Catering. This diploma is taught in Teruel under the Department of Animal Production and Food Science.
 - Master in Executive Management of Food Producing Companies “Valle del Ebro”
- In 2004 the Faculty of Veterinary Science organised the following further education courses:
- Summer courses in Jaca
 - Ovine Pathology
- The Faculty of Veterinary Science also runs a course for the Experience University for the Over Sixties on:
- “The animal world and man” organised by the Veterinary Medicine Department.

Regarding the syllabus

- Since the 2002-2003 academic year, a new syllabus has been steadily introduced in accordance to general Spanish regulations (Royal decree 1384/1991, 30th August which establishes the general guidelines and syllabuses for the Degree in Veterinary Science) and Veterinary Regulations 78/1027 EEC. The new syllabus defines a more practical approach to teaching which will gradually affect programme content by improving the proportion of theory and practice and placing greater emphasis of problem-solving in practical classes (PBL-Problem- Based Learning). In its on-going attempt to improve the quality of teaching the Faculty of Veterinary Science of the University of Zaragoza has

taken part in an ANECA (Agencia Nacional de Evaluación de la Calidad y Acreditación) (National Quality and Accreditation Evaluation Agency) project to design a new syllabus for the Degree in Veterinary Science in preparation for the European Higher Education Space (Bologna Statement).

- The new 2002 syllabus, which replaces the previous one from 1973, has been based on a renewed programme of training and learning objectives for teaching in the degree in Veterinary Science which covers:
 - the tasks and duties of vets
 - the teaching profile
 - the general and specific training objectives
- The syllabus for Veterinary Science is divided into 2 cycles: a first cycle lasting 2 years and a second one lasting 3 years. The new syllabus is based on two, four-monthly periods so most subjects are four-monthly and some annual.
- It is compulsory for all students to have 15 credits for STAGES and 6 credits for CLINICAL WORK AT HOSPITAL.
- A range of elective subjects has been designed in 6 subject areas :
 - Applied biotechnology for veterinary sciences
 - Pet surgery and medicine
 - Animal production
 - Animal protection and environmental conservation
 - Public health and food control
 - Food technology
- A wider range of optional subjects is now available, as will be explained in Chapter 4.

With regards to Installations and Equipment

- In the area of hospital installations and equipment, marked improvements have been made. Since 2002 the Faculty of Veterinary Science has used the Veterinary Teaching Hospital (VTH), officially opened in Spring 2003, to provide the opportunity for students to do practical training in clinical subjects, by attending patients at the hospital and treating animals, always in compliance with the minimum training levels established in the general guidelines for the degree in Veterinary Science in Regulation 1027/CEE of 18th December 1978. The VTH, in which vets and lectures from the Veterinary Medicine Department also participate, works as an independent body administratively.
- At present students have access to one examination room and two operating surgeries for horses; 10 veterinary surgeries and operating surgery for small animals plus premises with installations for ruminants.
- The number of animal examination areas for small and large animals, which were considered insufficient in the 1994 visit, has been increased.

- The Animal Experiment Support Service buildings have been almost completely renovated throughout. An 800 m² building has also been built for teaching work with large and small ruminants and space to stable horses.
- Since 2002 the Veterinary Faculty has had a Food Science and Technology Pilot plant (officially opened in Spring 2003), which has meant a big step forward in Food Technology and Hygiene teaching.
- Work is planned, and about to begin, on the new building for the P3 Laboratory for Bovine Spongiform Encephalopathies, which is a national reference laboratory for this disease.
- Most classrooms are fitted with modern projectors and portable projectors are available for those which are not.

With regards to teaching

- As far as horse medicine is concerned, the Veterinary Teaching Hospital has installations worthy of only the best horse hospitals (anaesthetic connection, mobile, articulated operating table, pre-anaesthetic handling system, operating room, travelling crane which enables animals to be moved to any part of the Hospital). To these installations we should add the outstanding work done by 4 Associated teachers from outside the Horse Hospital, in addition to an agreement with the Horse Care Centre (Zaragoza) belonging to the Defence Ministry (a centre recognised by NATO) which also deals with hospital cases, especially in the area of reproduction pathology.
- It should be pointed out that 10 Associated Teachers were employed to work in different areas (slaughterhouse, pig farming, pig hospital, horse hospital and exotic animal hospital). The number of practical cases attended has therefore increased thus providing more training opportunities for students.
- As far as the small animal hospital is concerned, the installations and organisation have also improved. A rotating system for residents has been introduced providing a 24-hour hospital service. Increases in the number of hospital cases and continual professional development have been slower due to the difficulties encountered in establishing communication with private professionals without causing competition. One of the main objectives of the Centre Management Team is to change this.
- In 1994 practical training in the slaughterhouse was insufficient amounting to only 3 hours per student. Practical teaching in the area of food hygiene (45 hours per student) is divided into slaughterhouse inspection (12 hours), seminars on slaughterhouse inspection in the classroom (9 hours: inspection, correct hygiene procedures, hazard analysis and critical control points, certification) training at the Pilot Plant of the Faculty itself (8 hours: general hygiene and inspection of milk), laboratory practice (16 hours). Laboratory practice includes 4 hours meat hygiene and inspection, 4 hours fish and seafood hygiene and inspection and 4 hours canned food and mushroom hygiene and

inspection. To help with specific practical training in the Slaughterhouse the number of Food Hygiene Inspection and Control staff has been increased by 1 Associated Teacher.

- The signing of regional, national and international agreements provides students with further training opportunities.

With regards to teaching techniques

- a programme of tutorials has been developed for new students
- Integrated teaching experience has begun although the level and number of teacher is low
- Computer rooms are now used for training in different subjects.
- A programme to introduce the credit system ECTS (European Credit Transfer System) has begun for veterinary courses.
- The virtual campus is being used increasingly as a multimedia tool for both classes, practicals and teaching.

Others

- The Zaragoza Veterinary Faculty takes part in several academic exchange programmes in Europe (Sócrates-Erasmus) and nationally (Sicué-Seneca), as well as placement programmes (Leonardo, Universa, Mecenazgo-CAI).¹
- The University has an Advisory Commission for Animal Welfare in Teaching and Research for which the Veterinary Faculty was one of the main promoters

¹ To check students flow, see Annex 1



CHAPTER 1: OBJECTIVES

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1. FACTUAL INFORMATION

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

If this is the case:

- State them.
- Who determines the official list of objectives for the establishment?
- By what procedure is this list is revised?
- Does a permanent system exist to assess whether the general objectives of the establishment have been achieved? If so, please describe it.

If there is no official list, please indicate the objectives upon which Faculty's operation is based.

The main objective of the Faculty of Veterinary Science of Zaragoza is to prepare qualified professionals adapted to the needs of today's society by means of quality teaching and research.

At the end of 2003 a Strategic Plan for the Faculty of Veterinary Science was submitted, which included the General and Specific Training Objectives and outlined the specific Lines of Action to be taken in order to achieve them. The plan was written by the Dean's Team advised by two Commissions, one internal, with representatives from the teaching staff, students, administrative staff and services staff, and the other comprising external advisors (administrative and business professionals, and college members).

The Strategic Plan includes the Strategic and Specific Objectives and outlines the Lines of Action to be taken in order to achieve them, as well as the indicators required to keep track of progress made and assess it.

It is therefore the Dean's Team which is to propose the Objectives, as well as the lines of action to be taken each year in order to achieve them, a task completed with the help of the Community of the Center and external assistants. The assessment of the results achieved is carried out by the Faculty Board.

The general and specific objectives of the Faculty in relation to the degree in Veterinary Science are still those approved by the Faculty Board in 1992 and are as follows:

Training Objectives:

General objectives:

- To provide adequate basic training to enable the graduate to go on later to specialise in other areas of veterinary activity and keep up to date with continual scientific and technological innovations.
- To provide students with the knowledge and ability to handle the most relevant information resources from a critical point of view.
- To teach students to use scientific methods and handle the basic instruments available for their application.

- To encourage students to develop a practical approach to problem solving via process analysis, the assessment of alternative solutions and their cost, and decision making.
- To encourage the correct attitude and development of the skills required for interdisciplinary working groups.
- To report on the implications involved in exercising the veterinary profession in their field of work and within the framework of the socioeconomic activity as a whole.

The chapter on specific objectives (see Annex n.2) will include the objectives for all the subjects on the curriculum; the aim of which will be to provide graduates with the knowledge they require to order become professionally qualified to ensure animal and human health via:

- Hygiene control, production, inspection and technology in preparation of food for human consumption, from raw products to the consumer.
- Prevention, diagnosis and individual or collective treatment, to fight against animal diseases, whether in individuals or groups, in particular zoonoses.
- Control of breeding, husbandry, welfare, reproduction protection and feeding of animals, in addition to production improvement.
- The achievement of optimum, economically viable conditions for animal products, and the assessment of their effect on the environment.
- The establishment of legal and administrative regulations for all areas of the veterinary profession and public health.

The above mentioned objectives appear in the White Book for Veterinary Degree Titles, which refers to all basic aspects of the design of the following regulations and was published in February 2005 by the National Quality and Accreditation Evaluation Agency, as do the objectives of a network of Spanish Universities:

- The Executive Proposal 2002/0061 (COD) of the European Parliament referring to professional veterinary qualifications.
- The European Regulation 78/1027 EEC of 18th December 1978 for the recognition of titles and degrees in veterinary science.
- Law 44/2003, order for the health profession BOE 22nd November 2003 and
- The Framework Document passed by the European Veterinary Federation. (EVF/00/011).

2. COMMENTS

In your view, to what extent have the objectives been achieved?

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

At the time of writing this document, just over eighteen months have passed since the Strategic Plan was submitted. For this reason, the degree of success achieved in each Line of Action proposed for each Strategy, for each Objective, will be measured by considering the extent to which progress has been made.

It is however necessary to indicate some points which have made progress difficult in some lines of action.

Financial dependence on the budget from the University of Zaragoza and the Government of Aragón has clearly been the reason for the failure of some of the Lines of Action proposed, as has been the lack of comprehension from local authorities with regards to the site of the veterinary faculty within a changing town plan

Difficulties encountered in encouraging lecturers to adapt their teaching methodology to the new Merger Plan. Students also expressed their difficulty in adapting to the new scheme.

WEAKNESSES, THREATS, STRENGTHS AND OPPORTUNITIES

The design of a Strategic Plan for our Faculty was based on the results of an analysis of the present situation carried out by students, administrative and services staff, teaching and research staff, collecting information from within the Faculty, and business and Administrative professionals collecting information from outside the Faculty.

The Weaknesses, Threats, Strengths and Opportunities expressed in the strategic plan, which affect the achievement of the suggested objectives, are as follows:

WEAKNESSES

- The location of the veterinary campus so far away from the centralised systems and resources based in the Plaza San Francisco.
- The services, staffing and budget for the Faculty do not correspond to our status as so-called "Campus".
- Since land belonging to the veterinary campus was used for several buildings (the Food and Technology Pilot Plant, the Veterinary Teaching Hospital, the National References Centre for Encephalopathies) and the re-siting of the Animal Experiment Support Service, there is now no further space for any other new buildings to improve the facilities for teaching and research.
- Access to the centre is not controlled and there is no traffic system within the campus.
- Many buildings are in a bad state of repair as a consequence of insufficient maintenance and poor adaptation to needs and security requirements (leaks, floods, air-conditioning, entrance ways, emergency exits, etc).
- Not all the buildings have Electrogenous Group.

- The risk map is out of date and not all members of staff working at the centre are familiar with it.
- Safety procedures for risks are either unheard of or are not always applied.
- Safety regulations are unclear or unknown or not enforced. The Computing and Communications Service of the Faculty is seriously understaffed and there are also problems of this kind in the Computer Service and Computer Rooms.
- The Audiovisual Service is also understaffed.
- There is no suitably equipped room for video conferences.
- There is not enough space in the Veterinary Faculty Library for filing cabinets, shelving and computer equipment.
- The number of staff in Administration and Services is insufficient and the student/teacher ratio does not meet European recommendations.
- The ageing of the staff, due largely to limitations in hiring new staff, is of concern
- Procedure for Control and Assessment of Teaching is not respected as it does not meet requirements.
- In spite of the efforts made to date, training placements are still insufficient.
- There is not enough liaison between the Faculty and companies in the region, which do not always respond to its needs and requirements.

THREATS

- The opening of the Veterinary Teaching Hospital may affect relations with Professional Colleges and Associations.
- In the short and medium term competition may increase from other Faculties in Autonomous Communities with better resources.
- Research incentives occasionally prove to be detrimental to teaching.
- The application of the Organic Law for Universities creates a feeling of uncertainty which may affect the professional career of younger teaching staff.
- Difficulty in gaining recognition for research activities in certain areas of knowledge is discouraging and demotivating for teaching staff.

STRENGTHS

- The geographical location of the Faculty of Veterinary Science of Zaragoza within a region of great tradition in farming.
- The opening of the Veterinary Teaching Hospital and Food Science and Technology Pilot Plant has made a great step forward for teaching and research at the Veterinary Campus.
- The building of the new National Reference Centre for spongiform encephalopathies on the University Campus has been a positive factor.
- Administrative and Services Staff working for the Faculty are a strong point for us as they are well qualified and trained.
- The Journal Collection and Library of the Faculty are a useful reference for professionals from a wide area
- The Audiovisual Service is an excellent source of teaching resources.
- Teaching and research staff of the Faculty are a strong point thanks to their qualifications, quality and research work.
- The Veterinary degree students are also a strong point.

- Staff-student relations are generally good.
- Many teaching staff have managerial experience in different fields.
- The fact that most teaching staff are working exclusively for the Faculty means that most of them stay for a long time and there is more interaction with students.
- The Research groups of the Faculty, which are usually interdisciplinary, are of a high level on a national and international scale.
- Students trained by our Faculty are highly rated on the labour market
- There is a wide offer of Third Cycle Programmes
- The multidisciplinary character of the teaching staff in the Faculty enables them to take on research in a wide range of subjects.
- The research projects carried out by the Faculty are of great importance to the surrounding area (Ebro Valley)
- The Animal Experiment Support Service (Servicio de Apoyo a la Experimentación Animal – SAEA) being on the campus and serving the Faculty.

OPPORTUNITIES

- The existence of a previous Report from the European Association of Establishments for Veterinary Education is a good reference point in support of the Strategic Plan itself.
- The completion of work on the Campus will mean that reorganisation can finally be defined.
- The re-use of the old Clinics Building.
- The workings of the Pilot Plant and the quality of the research groups will support development in the Food and Agriculture Sector of the Ebro corridor
- Limited entry of students allows for quite favourable students/teacher ratios in most cases.
- New Information Technology in Communications has proved to be a useful tool
- The excellent relationships our Faculty holds with other European and Latin American faculties leads us to consider opportunities of working together
- The II Autonomous Plan for Research Development and the Transfer of Knowledge in Aragón may serve as a framework to structure the research activities of the region and thus ensure a more stable basis upon which to gain financial support.
- The University of Zaragoza's efforts to bring the world of education and research into closer contact with society may help to change the present situation in which most cases remain isolated.
- The great potential of the geographical area in cattle farming and agriculture as far as raw materials and their processing is concerned

3. SUGGESTIONS

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

1. To gain recognition for work done in teaching, research, services and management so that teachers do not favour working on research to the detriment of the other three areas.
2. The need to define a strategic line for the Faculty to work towards. There are too many research groups working on diverse topics. It would be necessary to define and propose postgraduate courses in areas where there is enough to work on.
3. The need to find another private financial source for specific activities for which public financial support is not enough. (This contrasts with the present reaction of local Companies which is not very favourable when large sums of money are needed).



CHAPTER 2: ORGANISATION

Chapter 2. ORGANISATION

1. FACTUAL INFORMATION

Details of the establishment

Name of the establishment: *Facultad de Veterinaria*

Address: *177, Miguel Servet St. 50013 Zaragoza*

Telephone: +34 976 76 16 11

Fax: +34 976 76 16 12 Website: <http://wzar.unizar.es/acad/fac/vete/unizar.html>

Title and name of head of the establishment: *Prof Dr. D. Manuel Gascón Pérez*

Is the establishment within a university? Yes.

If so, please give address of the university.

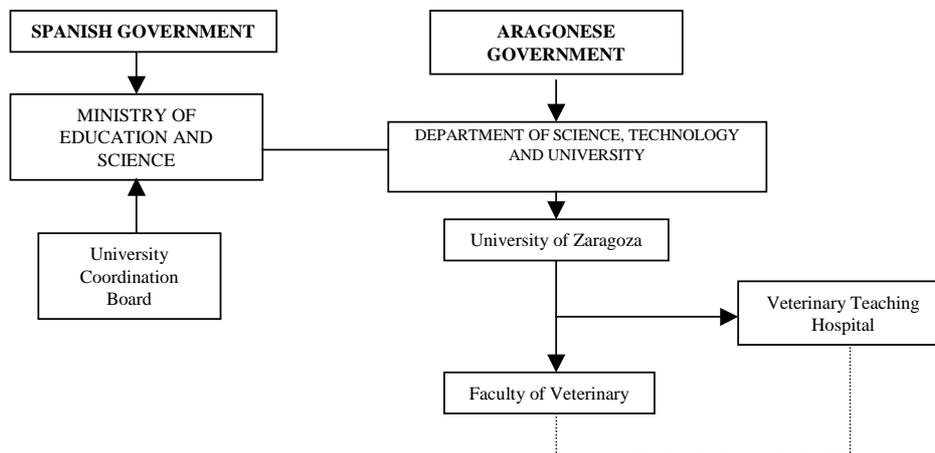
Universidad de Zaragoza. C/ Pedro Cerbuna, 12 – E 50009 Zaragoza

Details of the competent authority overseeing the establishment:

Science, Technology and University Department of the Autonomous Government.

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

Fig I. Administrative Structure



The University of Zaragoza, a public organization, depends on the Ministry of Education and Science, Technology and the University of the Government of the Autonomous Community. As stated in the Organic Law for Universities, the Government will establish which university titles are to be official and the general guidelines for the study programmes.

The Government of the Autonomous Community carries out legislative duties and deals with teaching throughout the Community, at all levels, of all types and specialist areas and therefore includes university courses.

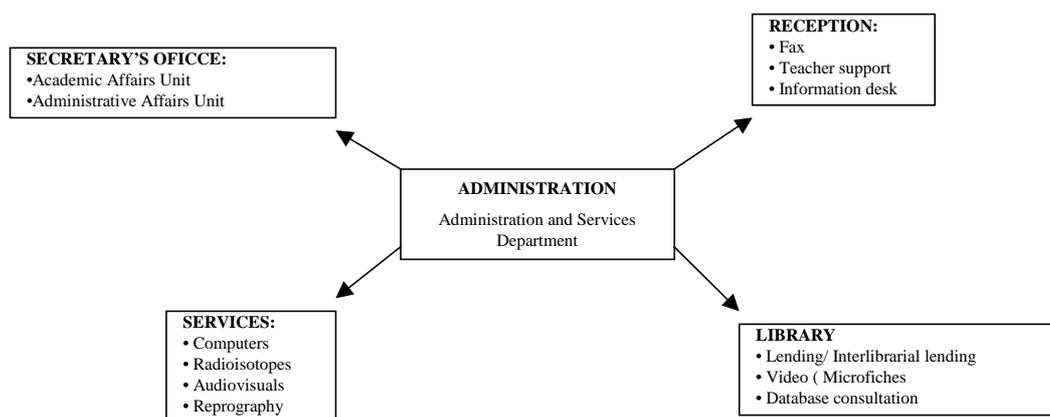
The University of Zaragoza is the only public university in the Autonomous Community of Aragón. It has campus in Huesca, Teruel and Zaragoza, and four appointing centres.

The University has four University Research Institutes (The Institute of Engineering of Zaragoza, The Biocomputation and Physics Institute for Complex Systems, The Homogeneous Catalyst and Nanoscience (Institute of Aragón) each with its own infrastructure, organisms and budget.

The Summer University of Jaca (belonging to the University of Zaragoza) and Teruel offer various courses some of which receive free- composition credits from the University of Zaragoza.

Provide a diagram of the internal administrative structure of the establishment itself.

Fig II. Administration and Services of the Faculty



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

In the Faculty there is an Administrative and Services Unit (see Fig. II) with an Administrator whose area of responsibility covers all the Manager's duties as received from the University.

The Administrator's duties are:

- To act as head of all administrative and services staff of the Faculty.
- To ensure decisions taken in the area of economy and administration are carried out in coordination with the Dean.

The administrative and services organization of the faculty covers, at least, the areas of:

- Secretary's office:
 - Dealings in Academic Affairs
 - Dealings in Administrative Affairs
- Reception:
 - Fax service
 - Teacher support
 - Enquiries and telephone calls
- Library:
 - Lending and inter-library lending
 - Videos / microfiche
 - Data consultation
- Services:
 - Computers
 - Audiovisuals
 - Radiosotopes
 - Reprography

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

The Social Board of the University is the entity by means of which society may keep in contact with the University.

One of its purposes is to act as a communication channel between the society and the University so that they may express their needs and requirements to each other.

With respect to Veterinary Science, the Dean holds meetings at regular intervals with lecturers to discuss the needs and interests of the Veterinary profession and build them into the Faculty's teaching programme.

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

The Faculties are the centres in charge of the general organisation of teaching and academic, administrative and management processes.

The Government bodies of the Faculties (see Fig. III) are defined by statutes (published in 2004) and regulated by their guidelines.

They are as follows:

- Single bodies
 - **The Dean:** directs and manages the general running of the centre and represents it. The Dean is elected by the centre board by free, equal, direct and secret vote from doctor professors from the university teaching bodies belonging to the centre, appointed by the Vice Chancellor. The position is held for four years and the Dean may only be elected once.

- Collegiate bodies :
 - **The Dean's Team:** proposed by the Dean and appointed by the Rector. Comprises:
 - The Dean.
Dr. Manuel Gascón Pérez
 - Vice-Dean for Academic and Student Issues
Dr. María Pilar Arruebo Loshuertos
 - Vice-Dean of Infrastructures, Services and New Technologies
Dr. Jesús García Sanchez
 - Vice-Dean of Institutional Relations and Social Affairs
Dr. Enrique Sáez Olivito
 - Vice-Dean for External Placements and Exchange Programmes
Dr. Regina Lázaro Gistau
 - Deans's Deputy for Information and Communication Technology
Dr. Ignacio de Blas Giral
 - Dean's Deputy for Pedagogical Cooperation
Dr. M^a Teresa Muño Blanco
 - Dean's Deputy for European Convergence and Evaluation
Dr. Agustín Ariño Moneva
 - Vice-Dean for Food Sciences and Technology
Dr. José Antonio Beltrán Gracia
 - Center Administrator
Mr. Eduardo Munárriz Bermudo
 - Centre Secretary
Dr. Ángel Sáez Olivito
 - **Faculty Board:** The body recognised by the government of the centre. Automatic members of the board are the Dean, who presides it, the Vice-Deans and Centre Secretary, assisted by the Administrator who will be a member without the right to vote. Each representation of the representatives is as follows:
 - 65% of the representatives are elected by and from amongst the teaching and research staff (TRS) of the centre.
 - 30% of the representatives are elected by and from amongst the students registered in the centre.
 - 5% of the representatives are elected by and from amongst the administrative and services staff belonging to the centre.

At least 51% of the board members will be state employees from university teaching bodies.

The duties of the board will be:

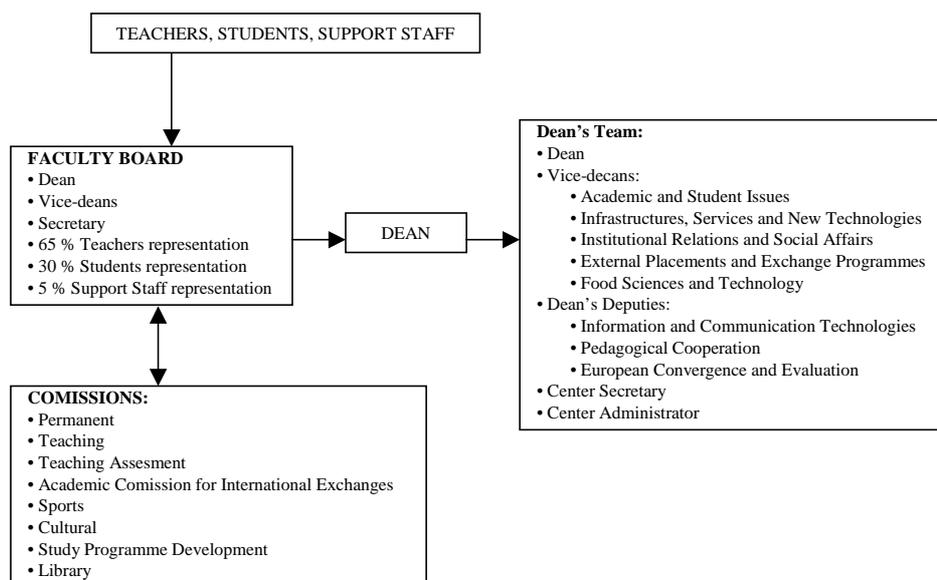
- a) To elect or dismiss the Dean.
- b) To approve proposals regarding the addition or removal of titles or courses.

- c) To approve the general rules for the running of the centre and establish basic criteria for its organization, in addition to coordinating teaching activities.
- d) To present to the Government Council the proposal as to how the subjects corresponding to courses offered by the centre should be designated to different areas of knowledge.
- e) To programme courses over the academic year and approve requests for courses made as proposals to the departments.
- f) To assist and support the Dean in these tasks.
- g) To participate in accreditation processes for the titles and courses offered by the centre.
- h) To draw up its regulations project and any later modifications made.
- i) To approve the report of the year's activities and present the accounting balance.
- j) To propose the concession of "doctor honoris causa" and other distinctions.

In the Faculty there are several Commissions:

- Permanent Commission
- Teaching Commission
- Teaching Assesment Commission
- Academic Commission for International Exchanges
- Sports Commission
- Culture Commission
- Study Programme Development Commission
- Library Commission

Fig III:Government bodies of the Faculty



Departments

The bodies in charge of coordinating teaching in each area of knowledge in one or more Centres of the University of Zaragoza and supporting activities and teaching and research initiatives of the lectures. (See Figure IV).

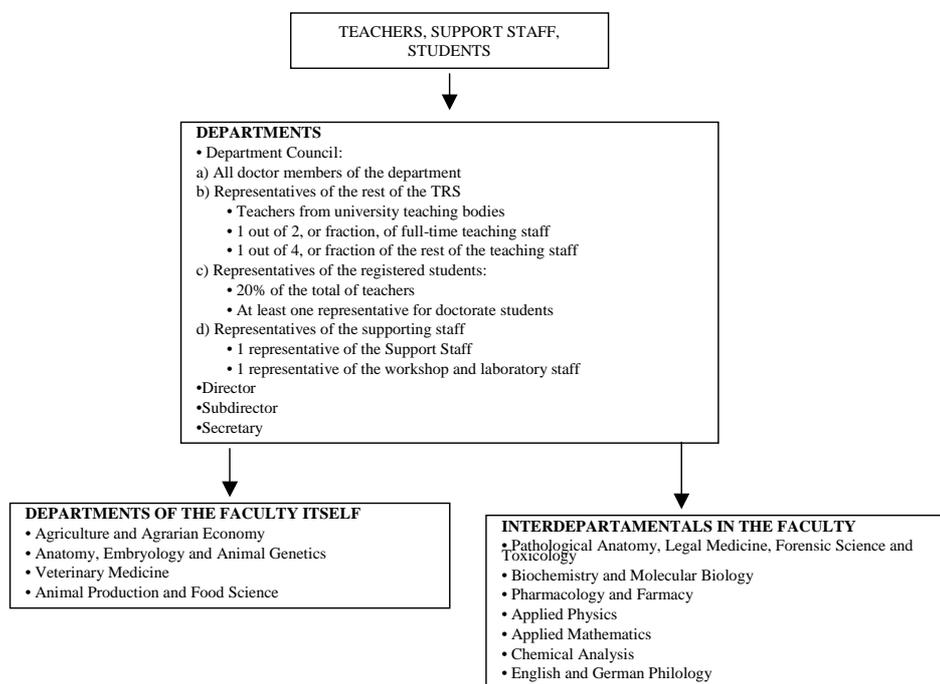
The Government bodies of the Departments are:

- **The Department Council:** will elect the Director who is to be president and will be composed of:
 - a) All members of department who are doctors.
 - b) Representatives from the rest of the TRS (PDI):
 - Lecturers from university teaching bodies.
 - One out of every two or a fraction of the full time teaching staff.
 - One out of every four or fraction of the rest of the teaching staff.
 - c) Representatives from the students registered:
 - Students registered on courses taught by teachers from the department or from Doctorate programmes, amounting to 20% of the total teaching and research staff of the department council.
 - At least one representative from students on Doctorate Courses.
 - d) A representative for administrative and services staff and, should there be one, one for the workshops and laboratories belonging to the department.
- **Director:** Elected by the department council from amongst the doctor lecturers belonging to the university teaching bodies who are members of the department appointed by the Dean.
- **Subdirector:** appointed on the Director's proposal.
- **Secretario:** appointed on the Director's proposal in the same way.

In the Faculty there are Departments which teach subjects from Veterinary Science. These Departments are:

- From the Faculty itself and its teachers.
 - Department of Agriculture and Agrarian Economy
 - Department of Anatomy, Embryology and Animal Genetics
 - Department of Veterinary Medicine
 - Department of Animal Production and Food Science
- Others. Departments comprising Lectures from other Faculties.
 - Department of Animal Pathology, Legal Medicine, Forensic Science and Toxicology
 - Department of Biochemistry, and Molecular and Cellular Biology
 - Department of Pharmacology and Physiology
 - Department of Applied Physics
 - Department of English and German Philology
 - Department of Applied Mathematics
 - Department of Chemical Analysis

Fig IV Structure of Departments



Similarly there are other Departments which, along with the one previously mentioned, also teach parts of the Food Science and Technology Degree. These departments are made up of lecturers from other university sites:

- Department of Design and Manufacturing Engineering
- Department of Chemical Engineering and Environmental Technologies
- Department of Psychology and Sociology
- Department of Inorganic Chemistry
- Department of Organic Chemistry and Physical Chemistry

The Veterinary Teaching Hospital

Recognised as an independently planned unit, it depends on the University Government Council and is in charge of organising hospital work for the Faculty of Veterinary Science of Zaragoza, coordinating teaching together with the Departments that impart it . It is managed by a Director and a team of two Subdirectors for the areas of small and large animals.

- Director: Dr. José Benito Rodríguez Gómez
- Subdirector for large animals: Dr. José Ignacio Cruz Madorrán
- Subdirector for small animals: Dr. María José Martínez Sañudo

Food Science and Technology Pilot Plant

Dependent on the Veterinary Faculty Board is in charge of organising and coordinating teaching and research related to food processing technology.

- Director: Dr. Santiago Condón Usón

2. COMMENTS

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

The fact that teaching is organised along two parallel lines, Faculty and Departments, occasionally causes coordination problems. When a problem related to teaching occurs the mechanisms for change have to be agreed with the Departments and this can lead to delays in the decision making required to solve the problem.

3. SUGGESTIONS

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

There are no formal agreements by which the Faculty may achieve better interaction with the veterinary profession. This should be solved in the future. One solution would be to create a Consultancy Committee made up of veterinary professionals which, along with the Faculty's management team, could endeavour to establish communication channels between the two sectors.



CHAPTER 3: FINANCES

Chapter 3. FINANCES

1. FACTUAL INFORMATION

3.1: Expenditure

Calendar year: 2004		Academic year:	Euros
a. Personnel			
a.1. teaching staff			4,577,172.06
a.2. support staff			3,360,413.42
a.3. research staff			1,000,727.00
	Total for. a		8,938,312.48
b. Running costs			
b.1. supplies (gas, electricity etc.)			280,177.08
b.2. expenditure related specifically to teaching			¹ 374,599.68
b.3. expenditure related specifically to research			1,021,750.00
b.4. general operations (excluding the above)			² 582,685.92
	Total for b		2,259,212.68
c. Equipment			
c.1. teaching			³ 20,388.00
c.2. research			501,599.00
c.3. general (or common) equipment			⁴ 160,438.00
	Total for. c		682,425.00
d. Maintenance of buildings			181,644.84
e. Total expenditure			12,061,615.00

Note: to check University's budget, see Annex 9

Table 3.1.2: Costs for veterinary training		Euros
1. Annual direct cost of training a student (*)		⁵ 7,831.37
2. Direct cost of training for a diploma (**)		51,530.39

(*) Annual costs = addition of (a1+a2+b2+c1) / n° students of veterinary

(**) Annual costs x average number of years of training for a student

¹ This figure represents exclusively the budget destined to departments' teaching, the allocation for bibliographical funds of the center (including the centralized periodic publications) and the specific budget of external practices.

² In addition to the general expenditure of the Center, it includes costs of the vigilance services, cleaning and gardening and the nonspecific ones of the departments' teaching.

³ It only appears the amount assigned to the Faculty and departments with specific activity in veterinary medicine in concept of educational equipment.

⁴ It corresponds to low cost maintenance or fixing activities

⁵ Except the ones classified as expenses relative to investigation, the rest of nonspecific sections of teaching, also can be considered like imputable to it, in the proportion that they represent over the global costs; in this case, a 76,75%.

According to this estimation the resulting costs for veterinary training would be:

- Annual direct cost of training a student: 8,700.55€

- Direct cost of training for a diploma: 57,249.61€

3.2. Revenue

Table 3.2.1: Annual revenue of the establishment

Calendar year 2004	Academic year:	Euros
a. revenue from the State or public authorities		
b. revenue from private bodies		
c. revenue from research		1,355,691.70
d. revenue earned and retained by the establishment.		
d.1. registration fees from students		
d.2. revenue from continuing education		
d.3. revenue from clinical activities		
d.4. revenue from diagnostic activities		
e. revenue from other sources (please specify)		
f. Total revenue from all sources		

With respect to this item, please see the section "**proportion of additional income that in each case is retained by the institution**", about the generation and destiny of the produced income.

In the 2004 exercise, the following incomes have been generated and due to their character *finalistic*, the Faculty retains them, and therefore, they increase its budget:

- Grants	450.00 €
- Rent of premises.....	25,595.14 €
- Requested services	7,130.90 €
- Communications costs	5,409.00 €
<i>Total finalistic income</i>	38,585.04 €

The levels of finalistic income are constant in the different economic exercises, with the exception of rents of premises that are subject to great variations, due to their sporadic character as they depend on occasional demands.

The income collected by the Centre with generic character is not retained by the Faculty nor is affected to the fulfillment of determined obligations, but is globally integrated into the University's budget, it also takes place in a regular and constant way. The quantification in 2004 has been:

- Registration/tuition prices	864,953.12 €	(*)
- Administrative fees	28,227.84 €	
- Renting services	16,056.03 €	
- Communications costs	3,780.00 €	
<i>Total generic income</i>	913,016.99 €	

(*) The income for academic tariffs of the Faculty of Veterinary Science, represents the 4.88% of the University's total.

Clinical activities yield correspond to the Veterinary Teaching Hospital, whose budget is independent and differentiated from the Faculty and as a university's service, has to tend to self-financing, reason why its income is reinvested to support its own expenses. The quantification in 2004 was, according to the following distribution, as follows:

- Small animals area	259,340.00 €
- Large animals area	42,221.00 €
- Subventions	3,993.00 €
- Extras.....	522.00 €
<i>Total income Hospital</i>	<i>306,076.00 €</i>

Table 3.2.2: Changes in public funding

Give the history of revenue from the state or public authorities (item a. from Table III.2.1) for the previous 5 years (in Euros).

Since the income by current transfers that comes from the Central Administration, autonomous organisms, autonomous communities and local corporations, is never carried out directly to the Faculty, but integrated into the income budget of the University, the data in reference to this one is pointed out.

Year	this year	previous year	N-2	N-3	N-4
Revenue	120,029,617.00€	114,959,391.00€	103,084,405.00€	94,653,336.22€	80,222,019.88€

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

- clinical work:
- analysis for commercial clients:
- analysis for veterinary practitioners
- research grants:
- other (please explain):

With respect to this section, please see the commentary to table the 3.2.1 and epigraph "**proportion of additional income that in each case is retained by the institution**".

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

The incomes obtained by the Faculty Center in concept of services made to organizations or external institutions that increase directly the global budget of the Faculty are considered as *finalistic*. In this chapter, incomes generated by the photodocumentation service, journals library, rent of the premises, fax service, etc, are also included. Identical category of income is given to those grants and specific donations of organizations or institutions, public or private, that can take place by agreement or by virtue of concrete activities of collaboration that, in any case and by their own character, are variable in their quantity and nonperiodic in their production.

On the other hand, the incomes of *generic* type are not integrated in the Faculty's budget despite collecting them. Its management is central, not being linked to obligations or commitment of concrete expenses; in this chapter, as a main source of income, the amounts

of services concessions and public prices obtained by academic services provisions, such as tuitions, Degree issues, certifications and other administrative fees, are included.

Outline how the allocation of funding to the establishment is determined, and by which 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 works in comparison to that for teaching centres (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

Funding allocation to the Faculty of Veterinary, like to rest of the teaching centres of our University, is determined centralized, since it is included in the budget proposal of the University of Zaragoza that annually is elaborated by the Vice-rectorate of Planning, Quality and Resources, and that must be transacted as a project by the Government Council and finally approved by the Social Council of this Institution. Technically, it is carried out by means of the application of standard criteria of distribution to the available budgets for the corresponding programs of teaching and investment.

Within the teaching programme, in the budgetary allocation to Centres and Departments the following sections have been considered, with the global amount and the one corresponding to Centers that is indicated:

<u>Teaching Programme</u>	<u>Global</u>	<u>Centres</u>
- General Expenses	3,518,609.00 €.....	1,040,782.00 €
- External Practices	226,291.00 €.....	47,506.00 €
- Incentives	233,000.00 €.....	105,000.00 €

The category of **general expenses** (1,040,782.00 €) includes two main chapters: operation and libraries, both representing 80% and 20%, respectively. The specific distribution for each of the 19 Centers at the University of Zaragoza is obtained from the application of the following parameters and their specific weight indicated as percentage:

- Operation (80%)	
students' fees	(70%)
hours of dedication of the ascribed teachers	(15%)
surface of the centre	(5%)
distance from central hub	(5%)
fixed allocation	(5%)

Library (20%)

students' fee	(70%)
number of loans of bibliographical funds	(10%)
teaching offer dispersion	(5%)
expenses per loan	(5%)
expenses per registered credit	(5%)
fixed allocation	(5%)

The budget for **external practices** (47,506.00 €) is allocated in base on the evaluations of the applications.

The category of **incentives** (105,000 €) represents an 8.8% of the allocation to Centers of the teaching programme and tries to establish a link between financial support and the accomplishment of certain objectives, specifically:

- academic yield
- strengthen of exchange activities
- organization of postgraduate courses
- actions in innovation and improvement projects

With regards to the investment programme, of centralized character, the distribution is made according to the sections whose global amount and the one that corresponds to Centres is specified as follows:

<u>Investment programme</u>	<u>Global</u>	<u>Centres</u>
- Infrastructure	300,506.00 €.....	300,506.00 €
- Teaching equipment	329,620.00 €.....	164,810.00 €

The budgetary allocation for infrastructure to the different Centres is made by means of the application of a similar model to that used for the teaching programme, distributing a 40% for furniture (120,202.00 €) and a 60% for low cost maintenance or fixing activities (180,304.00 €) according to the following parameters:

-Low cost maintenance or fixing activities (60%)	
surface of the Center	(30%)
growth of the Center	(20%)
buildings age	(18%)
students' fee	(10%)
hours of dedication of the ascribed teachers	(10%)
fixed allocation	(12%)
- Furniture (40%)	
surface of the Center	(5%)
growth of the Center	(25%)
buildings age	(20%)
students' fee	(10%)
hours of dedication of the ascribed teachers	(20%)
fixed allocation	(20%)

Following this model of economic allocation for the 2004 exercise, the budget of the Faculty of Veterinary Science and its percentage in the global of the University of Zaragoza are shown below:

<u>Programme</u>	<u>Allocation</u>	<u>Total</u>	<u>Percentage</u>
Teaching -----			
- General expenses.....		53,973.00 €.....	5.19%
Operation	44,165.00 €		
Library	9,808.00 €		
- External Practices.....	7,200.00 €.....	7,200.00 €	
- Incentives	4,881.00 €.....	4,881.00 €.....	4.65%
Investment -----			
- Infrastructure		18,152.00 €.....	6.04%
Low cost maintenance.....	11,744.00 €		
Furniture	6,408.00 €		
- Teaching equipment	8,722.00 €.....	8,722.00 €.....	5.29%

		Total	92,928.00 €..... 5.60%

As can be observed in the description of the economic allocation model to Centres, the most important factor in the budgetary distribution is the number of Degree students, materialized in their fees, since it supposes the 70% of the general expenses of the teaching programme and the 10% of the investment programme; which supposes a participation near the 43% of the budget determination for all concepts, and almost a 55%, if those incomes of variable nature (external practices, incentives and educational equipment) are excluded.

Since the degree of practical training is not included in the budget distribution, nor it is made any distinction regarding the specific degrees, the limitation in the number of students- a key element for the quality of teaching and learning- dramatically restricts the budgetary availability of the Faculty of Veterinary Science and represents a relative disadvantage, in this aspect, in comparison with other centres at the University of Zaragoza that even having greater number of registered students, their needs for operation are lower in terms of either a higher theoretical content or much smaller costs of the practical training

Describe briefly the mechanisms used to provide funds to cover expenditure (e.g. building work, major items of equipment,) and how decisions are made about this.

The expenses of ordinary character confront with the current budget of the Centre, increased with the finalistic incomes obtained throughout the economic exercise. The expenses of extraordinary character or those that by their extent cannot be covered by the ordinary budget of the Centre have to be covered with charge to the expenses heading of the central budget. Thus, they are subsumed, according to the nature of the cost, in the maintenance and investments programme or in the research programme, for certain equipment.

Since this type of expenses requires a sufficient budgetary planning, unless they come from an extraordinary and urgent circumstance, this type of performances normally are undertaken

through planned actions, even in pluriannual plans, affecting several economic exercises, or by means of specific agreements of financing and stipulated programme- contracts with the administration of the Autonomous Community, regardless of the general nominative subvention that constitutes the greatest part of the University budget.

The decisions about the origin, opportunity and priority of this type of expenses, due to their financing system, are adopted in the programmes of the University's Vice-Chancellor within the budgetary availabilities and according to the commitments and agreements with the Government of Aragon. In any case, as our Faculty lacks of enough economic resources to confront expenses in infrastructures, it cannot participate in the decisions adopted regarding the funding provision for these aims, being limited to present and expound the necessities that have to be covered in the Center and prioritizing them according to the urgency level or considered necessity; however, the final decision regarding the performances to confront, the order in which they have to be undertaken, the degree of accomplish and the financing affected, is adopted by the superior instances of the University representation (Vice-Chancellor, Government Council and Social Council).

Please indicate whether students:

1. pay tuition/registration fees
2. how much these are
3. how they are decided
4. how the funds are distributed

1.The students have to pay the corresponding public prices for academic services in each registered course, based on the subjects chosen in their registration, including fixed fees for handling of administrative character.

2.The registration fees are calculated on the basis of the value established for the credit, according to the experimental character of the Degree. To this amount it is necessary to add the corresponding administrative fees for the record's opening at the beginning of the curriculum, the fixed quota for the academic insurance and other administrative expenses. In the 2004-2005 academic year the cost of a credit for the Veterinary degree was of 12.95 € being gradually increased as many times as a same subject has been registered (19.33 € for second registration and 29.48 € for third and successive registrations). The administrative fees, included in the calculation of the total price, are fixed to 20.68 € for the record's opening (unique payment at the beginning of the curriculum), 15.60 € of fixed expenses and 1.12 € of academic insurance quota (whose collection has to be completely deposit in the National Institute of Social Security).

Additionally, the registration as a member of the Sport Activities Service of the University of Zaragoza, or the subscription to complementary and voluntary accident insurances would increase the total price of the registration fee.

The average cost of the registration in the reference academic year, calculated according to the correspondence between the number of the Degree's total credits and the number of years that compose it, including fixed expenses, can settle down in 1,051.43 €

3. According to the Organic Law of Universities, the public have to be established by the Government of each Autonomous Community, within the limits proposed by the Council of University Coordination for each academic year. By means of Decree 178/2004, of 27 of July of the Department of Science, Technology and University of the Government of Aragón the determination of the amount for 2004-2005 academic year was established.

4. The collection of the amount of these prices public constitutes a generic entrance; reason why it is destined to the cover of the majority of the expenses budgeted by the University of Zaragoza, according to the following percentages:

- Personnel expenses: 20.8%
- Current goods and services expenses: 70.4%
- Financial expenses: 0.3%
- Current transfers: 3.7%
- Real investments: 4.8%

2. COMMENTS

Teaching establishments never receive sufficient financial support. Please comment on any of the "Guidelines and Requirements" that are particularly difficult to fulfill in the present financial situation.

What is your main 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.

According to the functional and structural characteristics of the Centre and to the nature of its teaching activity, the available budget is considered insufficient and, in special with respect to the necessary dynamism that would be desirable for investments. This shortage of financing causes that the attention to the current expenses consumes almost all the available resources, being left little manoeuvre margin to undertake equipment and other investments that require an economic effort that the Faculty hardly can carry out with its own budgetary allocation.

In this way, any decision that requires certain level of investment has to be included in University central plans of performance or by being negotiated with the university control organs. In any case, the level of economic autonomy does not allow greater investing effort than that derivative of the allocation near to 11,000 € by this concept, plus the variable of the of educational equipment programme (see epigraph related to the determination of the funding allocation) that, in most occasions it is insufficient for an optimal attention of the infrastructure needs and mean resources.

The economic allocation to University Centers, including the Faculty of Veterinary Science, is subjected to the University financial availability. A matter that is yearly negotiate with the Autonomous Government of Aragon in order to establish the quantity of the basic transfer that has to be deposit in the university and it has to be included in the public budget of the Autonomous Community. Due to the lack of specific frame for university financing, the present mechanism provides a stable frame that can be considered enough to cover the demands that the University historically has made.

Therefore, the financial manoeuvre margin, because of the autonomy level of the management model of the University of Zaragoza and the necessary controls on the public cost, comes limited by the shortage of the available economic resources that makes ineffective any proposal of greater budgetary flexibility.

3. SUGGESTIONS

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

Without disregarding of the University economic constraints present in any proposal evaluation, it would be desirable a reassuring of the expenses in current goods, in such way that all operational needs could be assumed without a decrease of the investment possibilities in new educational equipment resources, and specially in those of the new information and audiovisual technologies.

In the same way, the Convergence Process towards the European Space of Higher Education requires a change not only in the educational methodologies but also in the physical structure of the lecture halls where that educational work will take place. To cope that, it will be necessary a budgetary planning to adapt the present reality of the spaces of this Centre and its distribution.

With regards to the economic model of allocation to Centres used by the University of Zaragoza, it is necessary to modify so the number of credits enrolled by students will not be the main determinant criterion. Thus, other factors closer to the real needs should be taken into account such as the percentage of practical training, nature of practical training with limited number of attending students and the resulting increase in the number of students' groups.....



CHAPTER 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 made 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.

Under the supervision of the laws governing University studies (basically the “LOU” and general regulations for curricular development or “General Regulations for University Studies”) all university courses will consist of core or compulsory subjects. The latter are considered as complementary training and are not necessarily related to the specific studies. They form 10% of class time. For each area of study eg. Medicine, Veterinary Science, Law, etc the total number of core or compulsory hours must comply to the minimum requirements established by Spanish regulations but there is no maximum limit of credits per subject. These regulations also establish the minimum component number of practical and theory classes it is to consist of.

The White Book has recently been drawn up by the Dean’s Conference of Spanish Veterinary Faculties. This White Book includes, amongst other things, suggestions about possible changes in the general guidelines related to the Degree Title in Veterinary Science. It may therefore be likely that the Ministry make changes to the regulations in the near future. This circumstance, in addition to internal changes in teaching methodology and teaching order plans for the adaptation to the European Higher Education Area (European Convergence), will mark the most important changes in so far as syllabus and educational planning for the Degree in Veterinary Science are concerned.

Each University has authority, although very limited, to distribute credits according to its needs. This freedom is mainly evident in the distribution of core and optional subjects. For instance, a subject area included in the 78/1027 EEC may be divided into two subjects by the Veterinary Faculty of Zaragoza but be included only as one in any other Faculty. Each university is free to decide which optional subjects it wishes to include or not.

In the case of veterinary studies, core subjects account for 85% of the total syllabus, leaving 10% for free choice subjects and 5% for optional subjects. This situation enables Spanish universities to teach similar syllabuses with slight differences in subject distribution. The syllabus approved for the Veterinary Faculty consists of 3995 hours of which 405 ($\pm 10\%$) are optional (or free choice) subjects, 225 ($\pm 5\%$) are elective subjects and the rest compulsory core subjects.

If the Faculty wishes to change the syllabus the process is controlled. The proposal for modification is to be drawn up and approved by the Centre Board, a prior report having been sent to the Centre Teaching Commission and the departments involved, which is later passed to the Government Council. If the modification is approved the proposal will be passed up to the University Coordination Council for perusal which, in turn, if it approves it, will pass it up in turn to the Ministry of Education and Science for final approval.

With respect to educational planning, firstly a proposal is drawn up by the departments teaching in the Faculty which is later studied by the Centre Teaching Commission. Once the proposal is approved as a whole by the Centre it is sent to the Vice Chancellor for Academic Planning who will pass on the general proposal for educational planning to the University Teaching Commission. The proposal is studied and passed up to the Universitarian Management Council who will approve it or not.

4.1: CURRICULUM FOLLOWED BY ALL STUDENTS ¹

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

	Hours of training					Total
	Lectures	Practical work (a)	Supervised work (b)	Clinical work	Other (c)	
1 st year	345	246.5	18		5.5	615
2 nd year	390	203	22			615
3 rd year	435	134	106	23	30	728
4 th year(*)	375	120		134	71	700
5 th year(*)	345	115.5	62.5		12	535
6 th year						
Total	1890	819	208.5	157	118.5	3193

(a) Includes: LABORATORY TRAINING, COMPUTER TRAINING

(b) Includes: PROBLEM-SOLVING SEMINARS

(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

(*) See table 4.1.2. bis in page 40

Table 4.1.2. **Yearly curriculum studies**

First year

Subjects	Hours of training					total
	Lectures	Practical work (a)	Supervised work (b)	Clinical work	Other (c)	
Anatomy and Embryology	90	90				180
Biochemistry	60	32	8			100
Physics	30	10	10			50
Mathematics	30	20				50
Chemistry	30	20				50
Animal and Plant Biology	30	30				60
Ethology and Animal Protection and Ethnology	45	14.5			5.5	65
Biomedical language (German or English)	30	30				60
Total	345	246.5	18	0	5.5	615

(a) Includes: LABORATORY TRAINING, COMPUTER TRAINING

(b) Includes: PROBLEM-SOLVING SEMINARS

(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

¹ See Annexes 3 and 4

Second year

Subjects	hours of training					total
	Lectures	Practical work (a)	Supervised work (b)	Clinical work	Other (c)	
Agronomy and Agrarian Economy	45	20				65
Cytology & Histology	60	45				105
Epidemiology	30	15				45
Animal Physiology	75	42	8			125
Genetics	45	16	14			75
Immunology	30	15				45
Microbiology	60	30				90
Parasitology	45	20				65
Total	390	203	22	0	0	615

Third year

Subjects	hours of training					total
	Lectures	Practical work (a)	Supervised work (b)	Clinical work	Other	
Animal Breeding and Health	60	15	30			105
Pharmacology, Pharmacy and Therapeutics	75	22	18			115
Animal Nutrition	60	28	32			120
General Pathology	60	14	16			90
General Pathological Anatomy	45	15		15		75
Clinical Propedeutics	45				30	75
Radiology	30			8		38
Food Technology	60	40	10			110
Total	435	134	106	23	30	728

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
(b) Includes: PROBLEM-SOLVING SEMINARS
(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

Fourth year

Subjects	hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work ⁽¹⁾	Others (*c)	total
Medicine and clinical surgery	60	20		30	15	125
Obstetrics and reproduction	75	6		44	15	140
Special pathological anatomy	45	60				105
Medical and nutrition pathology	75			60	15	150
Animal Production and Veterinary Hygiene	90	19			26	135
Economics applied to the agrifood sector	30	15				45
Total	375	120	0	134 ⁽¹⁾	71	700

Fifth year ²

Subjects	Hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work ⁽¹⁾	Others (*c)	total
Parasitological diseases	60	35	10			105
Deontology, legal medicine and veterinary legislation	30	7.5	7.5			45
Infectious diseases	90	25	15			130
Hygiene, food inspection and control	90	28	5		12	135
Preventive medicine and sanitary police	30	5	10			45
Toxicology	45	15	15			75
Total	345	115.5	62.5	0 ⁽¹⁾	12	535

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
 (b) Includes: PROBLEM-SOLVING SEMINARS
 (c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

¹ See table 4.1.2. bis in the page 40

² See Annexes 3 and 4

Table 4.1.2. bis. **Curriculum hours taken by the students either in 4th or 5th year**

Subjects	hours of training					
	Lectures	Practical work	Supervised work	Clinical work	Others	total
Clinical work at Hospital (*)				60		60
Stages (*)				300		300
Total				360		360

(*) The training hours in the subjects Clinical work at Hospital and Stages may be completed during class time period or non-class time periods in 4th and 5th year.

4.1.3: NUMBER OF CURRICULUM HOURS TAKEN BY EVERY STUDENT

Table 4.1.3.: **Curriculum hours in EU-listed subjects taken by every student**

Subjects	hours of training					Total
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
A. Basic Subjects						
Anatomy (incl. histology and embryology) (*1)	150	135				285
Biochemistry and molecular biology (*2)	60	32	8			100
Biology (incl. cell biology) (*3)	30	30				60
Biophysics (*4)	30	10	10			50
Biostatistics (*5)	30	20				50
Chemistry (*6)	30	20				50
Epidemiology (*7)	30	15				45
Genetics (*8)	45	16	14			75
Immunology (*9)	30	15				45
Microbiology (*10)	60	30				90
Parasitology (*11)	45	20				65
Pathological anatomy (macroscopicµscopic) (*12)	90	75		15		180
Pharmacy (*13)	6	4				10
Pharmacology (*13)	69	18	18			105
Physiology (*14)	75	42	8			125
Physiopathology (*15)	60	14	16			88
Scientific and technical information and documentation methods						0
Toxicology (incl. environmental pollution) (*16)	45	5	15			75
TOTAL	885	501	89	15	0	1490

(a) Includes: LABORATORY TRAINING, COMPUTER TRAINING

(b) Includes: PROBLEM-SOLVING SEMINARS

(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

Subjects	hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
B. Animal Production						
Agronomy (*17)	45	20				65
Animal behaviour (incl. behavioural disorders) (*18)	22.5	7.25			2.75	32.5
Animal husbandry (incl. livestock production systems) (*19)	140	34	30		26	230
Animal nutrition and feeding (20)	60	28	32			120
Animal protection and welfare (*18)	22.5	7.25			2.75	32.5
Environmental protection (*18 bis)	10	10				20
Preventive veterinary medicine (incl. health monitoring) (*20 bis)	30	5	10			45
Reproduction (incl. artificial breeding methods) (*21)	20	6				26
Rural economics (*22)	30	15				45
TOTAL	380	132.5	72	0	31.5	616

Subjects	hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
C. Clinical Subjects						
Anaesthetics (*23)	10	20				30
Clinical examination and diagnosis and laboratory diagnostic methods (*24)	45				30	75
Clinical medicine (*25)	75			60	15	150
Diagnostic imaging (*26)	30			8		38
Obstetrics (*21)	22			13	15	50
Reproductive disorders (*21)	33			31		64
State veterinary medicine, zoonoses, public health and forensic medicine (*27)	150	60	25			235
Surgery (*23)	50			30	15	95
Therapeutics						
TOTAL	415	80	25	142	75	737

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
(b) Includes: PROBLEM-SOLVING SEMINARS
(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

Subjects	hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
D. Food Hygiene						
Certification of food production units (*29)	10	4				14
Food certification (*29)						
Food hygiene and food quality (incl. legislation) (*29)	40	16				56
Food inspection, particularly food of animal origin (*29)	40	8	5		12	65
Food science and technology (*28)	60	40	10			110
TOTAL	150	68	15	0	12	245

Subjects	hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
E. Professional knowledge						
Practice management						
Professional ethics (*30)						
Veterinary certification and report writing (*30)	30	7.5	7.5			45
Veterinary legislation (*30)						
TOTAL	30	7.5	7.5			45

Table 4.1.4: Curriculum hours in other subjects taken by every student

Subjects	Hours of training					
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
Biomedical (German / English)	30	30				60

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
(b) Includes: PROBLEM-SOLVING SEMINARS
(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

ADDITIONAL INFORMATION OF CHART 4.1.3

The subjects referred to in chart 4.1.3. are those corresponding to the European Guidelines 78/1227EC. As mentioned previously, what may happen is that subjects included in the 78/1227EC are split into two subjects in Zaragoza or vice-versa.

In this case the breakdown of compulsory core subjects of the syllabus approved in 2002 for Veterinary Science has been carried out in the following way:

(*1) For the subject EU *Anatomy (incl. histology and embryology)* the subjects Anatomy and Embryology from 1st year and Cytology and Histology from 2nd are included.

(*2) For the subject EU *Biochemistry and molecular biology* the subject Biochemistry from 1st year is included.

(*3) For the subject EU *Biology (incl. cell biology)* the subject Animal and Plant Biology is from 1st year is included.

(*4) For the subject EU *Biophysics* the subject Physics from 1st year is included.

(*5) For the subject EU *Biostatistics* the subject Mathematics from 1st year is included.

(*6) For the subject EU *Chemistry* the subject Chemistry from 1st year is included.

(*7) For the subject EU *Epidemiology* the subject Epidemiology from 2nd year is included.

(*8) For the subject EU *Genetics* the subject Genetics from 2nd year is included.

(*9) For the subject EU *Immunology* the subject Immunology from 2nd year is included.

(*10) For the subject EU *Microbiology* the subject Microbiology from 2nd year is included.

(*11) For the subject EU *Parasitology* the subject Parasitology from 2nd year is included.

(*12) For the subject EU *Pathological anatomy (macroscopic & microscopic)* the subject Anatomy and General Pathology from 3rd year and the subject Special Pathological Anatomy from 4th year are included.

(*13) For the subjects EU *Pharmacy y Pharmacology* the subject Pharmacology, Pharmacy and Therapeutics from 3rd year (10 horas for the subject EU *Pharmacy* and the rest goes to *Pharmacology*) is included.

(*14) For the subject EU *Physiology* the subject Animal Physiology from 2nd year is included.

(*15) For the subject EU *Physiopathology* the subject General Pathology from 3rd year is included.

(*16) For the subject EU *Toxicology (incl. environmental pollution)* the subject Toxicology from 5th year is included (minus 10 h of practical work that goes to the subject UE *Environmental Protection*).

(*17) For the subject EU *Agronomy* the subject Agronomy and Agrarian Economy from 2nd year is included.

(*18) For the subject EU *Animal behaviour (incl. behavioural disorders)* the subject Ethology and Animal Protection and Ethnology from 1st year is included (50% goes to the subject EU *Animal Protection and welfare*)

(*18 bis) For the subject EU *Environmental protection* 10 hours of the subject Animal Production and Veterinary Hygiene from 4th year and 10 hours of the subject Toxicology from 5th year are included.

- (*19) For the subject EU *Animal husbandry (incl. livestock production systems)* the subjects Animal Breeding and Health from 3rd year, Animal Production from 4th year are included (minus 10 hours that goes to subject EU *Environmental Protection*)
- (*20) For the subject EU *Animal nutrition and feeding* the subject Animal Nutrition from 3rd year is included.
- (*20 bis) For the subject EU *Preventive veterinary medicine (incl. Health monitoring)* the subject Preventive Medicine and Sanitary Police from 3rd year is included.
- (*21) For the subject EU *Obstetrics, Reproduction (incl. artificial breeding resources)* and *Reproductive disorders* the subject Obstetrics and Reproduction from 4th year is included.
- (*22) For the subject EU *Rural economics* the subject Economy Applied to Food and Agriculture Sector from 4th year is included.
- (*23) For the subject EU *Anaesthetics y Surgery* the subject Medicine and Clinical Surgery from 4th year is included (it is divided between the UE subjects
- (*24) For the subject EU *Clinical examination and diagnosis and laboratory diagnostic methods* the subject Clinical Propedeutics from 3rd year is included.
- (*25) For the subject EU *Clinical medicine* the subject Medical and nutritional pathology from 4th year is included.
- (*26) For the subject EU *Diagnostic imaging* the subject Radiology from 3rd year is included.
- (*27) For the subject EU *State veterinary medicine, zoonoses, public health and forensic medicine* the subjects Infectious diseases from 5th year ; Parasitical diseases from 5th year are included.
- (*28) For the subjects EU *Certification of food production units, Food certification, Food hygiene quality* and *Food inspection, particularly food of animal origin* the subject Hygiene and Inspection and Food Control is included from 5th year is included (it is divided amongst the subjects EU)
- (*29) For the subject EU *Food certification* the subject Food Technology from 3rd year is included.
- (*30) For the subjects EU *Professional ethics, Veterinary certification and report writing y Veterinary legislation* the subject Deontology, legal medicine and veterinary legislation from 5th year is included. (it is divided amongst the three subjects EU)

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 mentioned in the section on general information students must complete 225 hours of optional subjects. In the second year of the Degree a student will complete 45 hours of optional subjects, the bulk of options on the syllabus being in the second cycle (180 hours). The optional subjects in the second cycle are spread over six branches or intensifications. For the Centre to recognise and certify any of the six optional intensifications at least 75% of the total hours must have been completed. However a student will be able to choose, if he wishes, individual subjects from amongst the options available, whatever intensification it belongs to.

Table 4.2: **Courses organised as elective subjects** ¹

	Subject	Hours of training					Total
		Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
Elective trak 1: First cycle	Ethnology of pets and competition animals	30	15				45
	Animal experiments	30	12	3			45
	Computer tools for scientific experiments	10	35				45
	Chemical analysis	40	20				60
TOTAL		110	82	3			195

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
 (b) Includes: PROBLEM-SOLVING SEMINARS
 (c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

¹ See Annex 4

		Hours of training					
	Subject	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
Elective trak 2: Biotechnology Applied to Veterinary Sciences	Biotechnology methods	10	35				45
	Biotechnology applied to molecular pathology	35	10				45
	Biotechnology and environmental	35	10				45
	Biotechnology and agrarian products	35	10				45
TOTAL		115	65				180

		Hours of training					
	Subjects	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	Total
Elective trak 3: Pet medicine and surgery	Neurophysiology	30	15				45
	Dermatology veterinary clinic	30	15				45
	Ethology veterinary clinic	35	10				45
	Traumatology, Orthopaedics and Podology	30	15				45
TOTAL		125	55				180

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
(b) Includes: PROBLEM-SOLVING SEMINARS
(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

	Subjects	Hours of training					Total
		Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
Elective trak 4: Animal production	Fodder and pasture production	30	15				45
	Selection methods	30	15				45
	Nutrition pathology in large animals and farm animals	30	15				45
	Projects and buildings for livestock	30	15				45
TOTAL		120	60				180

	Subjects	Hours of training					Total
		Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
Elective trak 5: Animal protection and environmental conservation	Wild fauna. genetic studies and conservation of the biodiversity	30	15				45
	Microbial ecology	30	15				45
	Enrionmental pathology	30	15				45
	Environmental toxicology	30	15				45
TOTAL		120	60				180

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
(b) Includes: PROBLEM-SOLVING SEMINARS
(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

	Subjects	Hours of training					Total
		Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
Elective trak 6: Public health and food control	Food microbiology	30	15				45
	Commercialization of farm and agrarian products	30	15				45
	Food quality control	30	15				45
	Food parasitology	30	15				45
TOTAL		120	60				180

	Subject	Hours of training					Total
		Lecture	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
Elective trak 7: Food technology	Fish science and technology	30	15				45
	Meat science and technology	90	60				150
	Milk science and technology	90	60				150
	Economy and management of food companies	45	10				55
TOTAL		255	145				400

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
(b) Includes: PROBLEM-SOLVING SEMINARS
(c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

4.3: OPTIONAL SUBJECTS

Although the subjects contained in the chart are those related to veterinary training, students may choose any they wish:

1. With subjects from other syllabuses, based on credits and according to the limits established in the registration guide for each subject.
2. From amongst the departmental and virtual subjects offered by the University.
3. Via the recognition of other subjects passed in other official studies.
4. Via the recognition of free-choice credits from other courses or activities (on prior request and approval from the Teaching Commission).

Subject	hours of training					Total
	Lectures	Practical work (*a)	Supervised work (*b)	Clinical work	Others (*c)	
Simposium on cooperativism and rural developmentI	20					20
Complete sustainable rural development	60					60
Agrarian and food model for neoliberal globalizationI	20					20
Technical conference on agriculture and livestock and ecological agrotourism	20					20
Synopsis on nature and the environment	45					45
Films and literature about veterinary medicine	45					45
Introduction to veterinary homeopathy	45					45
Coordinating with the Zaragoza dog show (Ring commission)	20					20
Cat and dog feeding	20					20
Food science and technology	30					30
Food industries	30					30
Total	355	0	0	0	0	355

- (a) Includes: LABORATORY TRAINING, COMPUTER TRAINING
 (b) Includes: PROBLEM-SOLVING SEMINARS
 (c) Includes: FIELD CLINICAL WORK carried out outside the Faculty

4.4: OBLIGATORY EXTRAMURAL WORK

Table 4.4: **Obligatory extramural work that students must undertake as part of their course**

Nature of work	Minimum period	Year of the course in which work is carried out
Stages	300 h	4th – 5th

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

This core subject refers to a period of practical training in the diverse scenarios of the veterinary profession. The student participates temporarily in the labor activity of a receiving organization under the supervision of an external Tutor.

This training takes place in 4th and 5th year during class time prior or non-class time periods. Although the student performs 300 hours training, it has 15 credits consideration in the curricula, that is to say 20 h/credit.

The host organizations can be companies (public, private, mixed), education centers, research centers, public administrations, Non-Governmental Organizations, etc. All these organizations will have to sign in a cooperation agreement in education with the Faculty of Veterinary.

The students' practical training can take place in one of the institutions supplied by the Faculty or can propose themselves an organization (before the beginning of the training period and with the approval of the Faculty Tutor).

The student will have an internal Faculty Tutor (appointed by the Center) and another external in the organization where the training takes place.

The student will present a report of the work to the Faculty Tutor, with the approval and sign of the external Tutor.

Also, the external Tutor will send to the Faculty Tutor a report with the placement details (duration, schedule, etc...) as well as an evaluation on the participation of the student and its involvement in the objectives indicated in the programmed activities.

The final qualification will be assigned by the Faculty Tutor, considering the evaluation report of the Instructor and the Centre coordination.

This practical training cannot be recognized by any curricular or extracurricular activity that the student had previously taken.

4.5: Ratios

Ratio: Theoretical training / Practical and clinical training			
$\frac{\text{Theoretical training}}{\text{Practical and clinical training}^*}$	=	$\frac{1890}{1663}$	= $\frac{1}{0.87}$
Ratio: Clinical training / Theoretical and practical training			
$\frac{\text{Clinical training}^{**}}{\text{Theoretical and practical training}}$	=	$\frac{635.50}{2709}$	= $\frac{1}{4.26}$

* Practical and clinical training: We have included Practical work (819 hours), plus Supervised work (208.5 hours), plus Clinical work (157 hours), plus Field Clinical Work (118.5 hours), plus Clinical work at Hospital (60 hours), plus Stages (300 hours, considering 20h/credit due to the nature of the work that each student performs)

** Clinical training: We have included Clinical work (157 hours), plus Field clinical work (118.5 hours), plus Clinical work at hospital (60 hours), plus Stages (300 hours, considering 20 h/credit due to the nature of the work that each student performs)

4.6: FURTHER INFORMATION ON THE CURRICULUM

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

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

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

Attendance to the academic activities related to the subjects is compulsory. However, attendance is only controlled in practical classes (clinical practice, etc) via the students signing lists. There is no control on theoretical classes.

Description of the subjects:

A.	BASIC SUBJECTS	Description
	<i>Anatomy (incl. histology and embryology)</i>	Basic comparative and topographic systematic anatomy for clinical application in production, hygiene and food industrialization. Description of embryonic interest. Embryonic handling. Congenital anomalies. Eucarotic cell structure. Description of tissues, organs and domestic and useful animals.
	<i>Biochemistry and molecular biology</i>	Molecular bases of life and productive processes. Molecular irregularities in diseases. Use in diagnosis, therapy and animal production..
	<i>Biology (incl. cell biology)</i>	Morphology, bionomy and animal systems, especially those of veterinary interest. Systematic Morphology and plant associations of veterinary interest.
	<i>Biophysics</i>	Physical bases of biological processes and industrial processes applicable to products of veterinary interest. Application of physics to Veterinary Science.
	<i>Biostatistics</i>	Basic principles of biometry and statistics applicable to Veterinary Sciences.
	<i>Chemistry</i>	Chemical bases of biological processes and medical and industrial applications. Chemical and environmental factors.
	<i>Epidemiology</i>	Prospective, analytical and descriptive study of the phenomena affecting populations in particular illnesses and health factors reflected in public health and ecosystems.
	<i>Genetics</i>	Biological inheritance: location and structure of hereditary information, transmission and recombination; expression, regulation and variation. Genetic Biotechnology. Clinical genetics. Population genetics.
	<i>Immunology</i>	Basic principles of the immune response and its technical application..
	<i>Microbiology</i>	Morphology, biochemistry, physiology, genetics and taxonomy of viruses, bacteria and fungi causing infections or biotechnological and ecological industrial applications..
	<i>Parasitology</i>	Morphology, bionomy and systematic of parasites in domestic and useful animals. Parasite-host-environment relations.
	<i>Pathological anatomy (macroscopic & micro)</i>	Nosology, physiopathology and immunopathology. The study of pathological alterations in cells, tissues and organs..
	<i>Pharmacy</i>	The general principles of pharmacokinetics and

<i>Pharmacology</i>	pharmacodynamics. A basic description of the main pharmacological groups. The study of pharmaceutical forms and their pharmacokinetical applications. Action mechanisms, pharmacological effects and their therapeutical and toxic consequences. Pharmacotherapy..
<i>Physiology</i>	The function of organs, systems and the complete organism. The application of Physiology in medicine and animal production.
<i>Physiopathology</i>	Nosology, physiopathology and immunopathology of cells, tissues and organs.
<i>Scientific and technical information and documentation methods</i>	N/A
<i>Toxicology (incl. environmental pollution)</i>	The study of natural or synthetic agents which may cause severe or chronic poisoning, their identification, action mechanism, clinical, or experimental diagnosis of toxicity, the recognition of deposits in food products with possible risks and those polluting the atmosphere. Toxicological and legal bases to ensure the harmlessness of medicines and additives.

B.	Animal Production	Description
	<i>Agronomy</i>	Plant-ground-animal relations. Plants used for cattle and the factors affecting their quality and performance. Praticulture. Agrarian economy. Economy and marketing of agricultural products..
	<i>Animal behaviour (incl. behavioural disorders)</i>	Animal behaviour, taming. Exploitation systems to reduce suffering. Study of external morphology and ethnological and productive characteristics of the main breeds and species used.
	<i>Animal Husbandry (inc livestock production systems)</i>	Genetic applications to improvement programmes. The elimination of lethal and sub-lethal factors in disease resistance. Coordination and application of different physiological and zoo technical knowledge to animal husbandry. Farm installations. Atmospheric hygiene.
	<i>Animal nutrition and feeding</i>	Valuation of nutritional requirements of pets and useful animals depending on their digestive and metabolic processes. Raw materials for animal foods, their value and ingredients.
	<i>Animal protection and welfare</i>	Animal behaviour, taming. Exploitation systems to reduce suffering. External morphological study and study of the ethnological and productive characteristics of the main species and breeds used.
	<i>Environmental protection</i>	Atmospheric pollutants. Atmospheric hygiene.
	<i>Preventive veterinary</i>	Bases for the preparation of sanitary programmes to make

<i>medicine (incl. health monitoring programme)</i>	livestock production more profitable, increasing production, reducing losses and improving both parameters. Bases for fighting diseases guidelines for prevention control and treatment.
<i>Reproduction (incl. artificial breeding methods)</i>	Includes pre and post natal care and medical or surgical solutions of birth problems in pets and useful animals. Clinical and technological physiopathology of reproduction.
<i>Rural economics</i>	Economic theory applied to the food and agriculture sector. Agrarian and food and agriculture marketing. The economy of livestock production.

C.	Clinical Work	Description
	<i>Anaesthetics</i>	Anaesthesiology: physiological and pharmacological bases..
	<i>Clinical examination and diagnosis and laboratory diagnostic methods</i>	Methods and procedures for clinical examination including complementary laboratory techniques and their interpretation
	<i>Clinical medicine</i>	Individual or collective, non-contagious or parasitological diseases resulting from hygiene-dietary or medicine treatments. Medical clinic either in the hospital or visiting.
	<i>Diagnostic imaging</i>	The type, production, properties and action of ionizing radiation on living beings. Its therapeutical and diagnostic applications. Guidelines on protection.
	<i>Obstetrics</i>	Includes pre and post natal care and medical or surgical solutions of birth problems in pets and useful animals. Clinical and technological physiopathology of reproduction.
	<i>Reproductive disorders</i>	
	<i>State veterinary medicine, zoonoses, public health and forensic medicine</i>	Processes caused by viruses, bacteria and fungi including epidemiology, clinical diagnosis, therapy control and treatment. Zoonoses. Protozoonoses, helminthoses and arthropodes considering clinical, epidemiological, and diagnostic control and treatment and their repercussions on productive processes, public health, zoonoses and the environment..
	<i>Surgery</i>	Sicknesses requiring surgery, techniques to be used including surgical replacement and experimental surgery.
	<i>Therapeutics</i>	N/A

D.	Food hygiene	Description
	<i>Certification of food production units</i>	Conditions which foods of animal origin must fulfill. Food safety from farm to table. Public health. Ante-mortem and post-mortem inspection Hygiene of Food establishments and food handlers. Practical works in slaughterhouses and other facilities of control, processing, distribution and sale of foods. Food regulations.
	<i>Food certification</i>	
	<i>Food hygiene and food quality (incl. legislation)</i>	
	<i>Food inspection, particularly food of animal origin</i>	
	<i>Food science and technology</i>	Food properties. Basic operations in the food industry. Practical work in food treatment and transformation installations..

E.	Professional Knowledge	Description
	<i>Practice management</i>	N/A
	<i>Professional ethics</i>	Ethical principles which should report to the veterinary profession. Legal guidelines which regulate the sale and use of animals and products of animal origin and those affecting veterinary work.
	<i>Veterinary certification and report writing</i>	
	<i>Veterinary Legislation</i>	

4.7: SPECIFIC INFORMATION ON THE PRATICAL CLINICAL TRAINING.

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

- do such rotations form a structured part of the training given to all undergraduate students?

Clinical rotation will be possible once the new syllabus for 2006-2007 is introduced, combining clinical training in different core subjects in 4th year with the compulsory subject “Hospital Clinic” in our University.

- the total number of days or weeks for 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

In the fourth year of the Degree, students complete three core subjects containing clinical training: Medical and Food Pathology, Reproduction and Obstetrics, Clinical Medicine and Surgery. Over the three subjects 120 hours of clinical teaching are completed (60, 24 and 36 respectively) distributed with 3 hours a day over the 8 weeks of training in the VTH. Of the 8 weeks, 2 are designated to large animal clinic and 6 to small animal clinic.

Of the two weeks for large animals, one is for farm animals (sheep, pigs and cows) and the other for horses. In both areas cases of internal medicine, reproduction and obstetrics and surgery are studied.

Of the six weeks for small animals, two are for internal medicine, two for medical-surgical specialization (see chart) one for reproduction and obstetrics and the other for anaesthetic and resuscitation. The distribution of subjects is as follows:

SUBJECT		CLINICAL TRAINING	
<i>Medical and Food Pathology</i>		<i>60 hours</i>	
	Internal Medicine Small Animals	2 weeks x 3 h day = 30 h	
	Specialization: <i>Dermatology; Exotic animals; Ethology; Oncology</i>	4 days x 3 h day = 12 h	
	Horse Clinic	3 days x 3 h day = 9 h	
	Farm Animal Clinic	3 days x 3 h day = 9 h	
<i>Reproduction and Obstetrics</i>		<i>24 hours</i>	
	Small animal surgery	1 week x 3 h day = 15 h	
	Horse clinic	1 day x 3 h day 3 h	
	Farm animal clinic	2 days x 3 h day = 6 h	
<i>Clinical Medicine and Surgery</i>		<i>36 hours</i>	
	Small animal operating surgery	3 days x 3 h day = 9 h	
	Small animal traumatology	2 day x 3 h day = 6 h	
	Small animal ophthalmology	1 day x 3 h day = 3 h	
	Anaesthetic and recovery	1 week x 3 h day = 15 h	
	Horse Clinic	1 day x 3 h day = 3 h	
<i>TOTAL FOURTH YEAR</i>		<i>120 hours</i>	

In the 2nd cycle of the Degree, students complete one compulsory subject with clinical training content.: VTH, 60 hours of clinical teaching over the 4 weeks of training in the hospital, at a rate of 3 hours a day. Of these 4 weeks 2 are for large animal clinic and 2 for small animal clinic.

Of the two weeks for large animals, one is for farm animals (sheep, pigs and cows) and the other for horses. For both there are cases of internal medicine and surgical medicine.

Of the two weeks of small animal clinic, one is for internal medicine and the other for small animal operating theatre (see chart)

SUBJECT	CLINICAL TRAINING
<i>Clinical work at hospital</i>	60 hours
Small animal operating theatre	5 days x 3 h days = 15 h
Horse clinical training	5 days x 3 h days = 15 h
Farm animal clinical training	5 days x 3 h days = 15 h
Small animal internal medicine	5 days x 3 h days = 15 h
TOTAL FIFTH YEAR	60 hours

With reference to students' activities and responsibilities, clinical practice is with small animals (dogs, cats and exotic animals), horses and farm animals. Training with small animals is done at the Veterinary Teaching Hospital or at external clinics which have agreements with the Centre. The horse clinic is either supervised by external teachers on contract with the university or at the Veterinary Teaching Hospital. Training on farm animals (pigs, sheep and cows) is also with teachers on contract at the Faculty.

For the clinical training with small animals done at the Veterinary Teaching Hospital of our faculty, the students, organised in small groups, rotate on different sections: general internal medical practice, general surgical practice, specialized area practice (traumatology, dermatology, ethology, ophthalmology, reproduction and obstetrics), operating theatre, intensive care unit, anaesthetics and recovery. Students at general practices or specialized practices are required to prepare clinical records beginning with anamnesis, patient examination and complementary examinations; they also have to prepare the differential diagnostic, discuss the diagnostic plan to be followed with their teacher and plan and follow up the diagnostic process to be applied (radiology, electrocardiography, analysis..) and prescribe treatment when necessary.

From the practices and services, the student accompanies the patient to carry out all the necessary complementary tests for the diagnosis. Whenever the corresponding training began in third year, degree subjects such as General Pathology, Propedeutics and Radiology, other services such as radiology, ecography or clinical laboratory analysis are also included in the rotation session.

Students also take part in pre-operation preparation of patients, anaesthetics, surgical monitoring, operating and post-operation follow-up.

In the operating theatre the student is responsible for preparing the patient for the operation. During the operation he/she helps as an instrumentalist or assists the surgeon, participating whenever possible in each case. The student is also in charge of finishing off the initial treatment and immediate post-operation follow up.

During the training in anaesthetics, the student evaluates the anaesthetic risk of each patient. The student informs the owner and monitors the patient.

Clinical practice on small animals in clinics which have an agreement with the Faculty is done by fourth and fifth year students who join the centre as helpers and prepare clinical records which are later reviewed by their teachers. This training is important as it forms part of the credits for training which must be done outside the centre.

Clinical practice with exotic animals is provided for students by an associated teacher.

As far as the horse clinic is concerned, part of the training is carried out in the teaching hospital and part on visits with associated teachers specialized in horse treatment, from outside the faculty.

Clinical practice with farm animals (pigs, sheep and cows) is also completed on visits to farms with associated lecturers linked to the centre. In such cases small groups of students go out to farms with the teacher to help and take part in the work involved with these species.

In addition to the compulsory rotating clinical sessions, the students may complete their training in elective subjects, placements and free-choice credits.

In the 2nd cycle of the Degree students are required to do so called “placements”, one of the many options available to do at the Hospital of the Faculty or in any other Teaching Hospital either belonging to the university or private, or with a wide range of companies and private clinics who have agreements with the Faculty.

During the 2nd cycle of the Degree the pupil should complete elective subjects, some of which include clinical practice. This is the case of Traumatology Orthopedics and Podology, Dermatology in the Veterinary Clinic and Ethology in the Veterinary Clinic.

Under the new syllabus it is necessary to obtain 40 free-choice credits, of which 13 are to be completed in first year and 27 in second year. The Hospital offers fourth and fifth year Degree students the possibility to validate these credits by doing training in their installations on days and at times when the core-subject classes are not being held there.

Such training has been recognised as free-choice credits by the Centre Teaching Commission and may be carried out in the Area of Large Animals or Small Animals as the pupil prefers. They are done on a weekly basis at times of the year when core subject training is not running. Students can choose between training in the mornings and/or training at “on-call” times

The free-choice offer of the Hospital is completed by training at Specialized Services such as Dermatology or Radiology.

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

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

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

Students take part in emergency work in the areas of both Large and Small Animals by doing voluntary training which is considered as free-choice credits. Such training is done on a weekly basis in one of the two Hospital areas all year round. Students have to be on call at the Hospital in the afternoons from Monday to Friday and morning and afternoon at weekends and on class days. At these times they are to assist interns from the hospital, along with the person in charge, to deal with however many patients come to the outpatients service at the hospital and animals in hospital. After 10 p.m. students only stay at the hospital if necessary but will be available on-call to go into the hospital if an emergency comes up, seven nights a week.

During the months of July and August “placement” students also take part in the emergency service along with the internal Degree students in each of the two areas thus completing approximately 5 emergency sessions on weekdays and 1 full weekend over the month. All these hours are spent at the hospital during the day or night.

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 teaching in the area of food hygiene (45 hours per student) is divided into slaughterhouse inspection (12 hours), seminars on slaughterhouse inspection in the classroom (9 hours: inspection, correct hygiene procedures, hazards analysis and critical control points, certification) training at the Pilot Plant of the Faculty itself (8 hours: general hygiene and inspection of milk), laboratory practice (16 hours). Laboratory practice includes 4 hours meat hygiene and inspection, 4 hours fish and seafood hygiene and inspection and 4 hours canned food and mushroom hygiene and inspection..

For slaughterhouse training there is an agreement with Mercazaragoza, a 16000m² building forming part of the Mercazaragoza food unit 8km from the city centre of Zaragoza. At this slaughterhouse cows, sheep, goats, pigs and horses are slaughtered. Visits to the slaughterhouse are in groups of 10 students accompanied by 1 teacher. There is an associate teacher for slaughterhouse training who is a former official slaughterhouse

inspector. Each student has to visit the slaughterhouse 3 times totalling 12 hours to carry out pre and post mortem inspections, carcass inspections, meat and offal, hygiene procedures in the slaughterhouse, control of specific risk materials and sanitary marking and identification.

Each student completes 9 hours of complementary seminars on visits to slaughterhouses for inspection cases, veterinary controls, hygiene measures in the slaughterhouse, Hazard and Critical Point Analysis, certification and documentation for slaughterhouse vets. In addition each student carries out laboratory practice (4 hours) on meat hygiene and inspection where tests are carried out to detect traces of prohibited substances and microbiological and parasitological analysis to detect possible zoonosis.

To complete practical training the Veterinary Faculty has signed 66 agreements with food companies and Food and Agriculture Councils and Health and Consumer Councils. These agreements are arranged by Universa and Central Secretary and academically controlled by the Veterinary Faculty. Each student may thus carry out a maximum of 500 hours of training.

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.

As already indicated, in Spain a vet is competent in animal medicine and surgery, animal production, food science and technology and public health. The programme is evenly balanced for this reason and prepares students quite well for life in the veterinary profession in this country.

However, the diversity of veterinary profession and the fact that the degree course in veterinary science in Spain is completed in five years by law restricts the curriculum somewhat. This becomes more obvious in fourth and fifth year.

Many changes have taken place over the last few years. On an international level, food crisis such as the Bovine Spongiform Encephalopathy, dioxins, etc, as well as the appearance or reappearance of animal pathogens indicate that more emphasis should be placed on food safety, public health and epidemiology. The sector of small animals and exotic pets is growing and this should be reflected in the syllabus. Moreover society is increasingly concerned about environmental issues and animal welfare which suggests that concepts such as sustainable animal production, waste disposal and animal welfare should be clearly promoted. Obviously all these objectives cannot be achieved without a major restructuring of the syllabus. These changes would probably affect some of the basic subjects taught at high school and would probably give them less weighting. The content

of subjects should also change. In our opinion the division of subjects into practical and theoretical classes made by Spanish law should be changed. More practical training is needed and some subjects should possibly be entirely practical while others remain theoretical. One step in the right direction would be to simply define the acceptable amount of practical work instead of specifying a number of practical and theoretical hours for each subject.

The main problem against restructuring the syllabus is the rigidity of the legal process required. Except for small details, the modification of a syllabus implies a long and not too flexible road. Fortunately this modification should not take long as a bill has already been passed.

The most important changes to the present syllabus will be related to measures taken for the creation of the European Education Space for Further Education Credit Transfer (ECTS). The RD 1125/2003 establishes the European credits system and the accreditation system for university titles which is valid and official for the whole of Spain. In our University we are presently preparing budgets to adapt teaching methods and syllabus structure to such a new system. The introduction of this system requires a conceptual reformulation of the organization of the curriculum for further education, adapting it to new training models focused on student work.

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?
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It would be advisable to improve the theoretical training/practical training and clinical training ratio (RE), and that could be achieved reducing the theory hours by transforming some of them into practical training (supervised work) or self-learning. This aim has the legal limitations imposed by the current syllabus which clearly marks the number of hours of theory and practice which must be given in each subject. In fact the ratio RE established in the current syllabus is 0.87, including the pre-professional placements.

Another question would be to increase the number of professors for external practices; thus, the students would have more chances to practice with farm animals, not only depending on small animal practice for practical training.



CHAPTER 5: TEACHING: QUALITY AND EVALUATION

Chapter 5. TEACHING: QUALITY AND EVALUATION

1. FACTUAL INFORMATION

5.1: THE TEACHING PROGRAMME

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

The Dean's Board hold meetings with the coordinating teachers of different subjects to draw up the programme of theoretical and practical classes, as instructed in the educational planning. The timetable of theoretical classes is included in the information booklet or cd's offered to students. At the same time the programme of practical classes is drawn up and a calendar for the year is published. These calendars are sent out to the coordinating teachers and to students, they are displayed in the theoretical class classrooms and on the Faculty website where they are up-dated should changes be made.

To deal with the progressive introduction of the revised syllabus a Teacher Delegate to the Dean for Teaching Coordination is designated whose main purpose is to avoid overlaps in the programmes and encourage the inclusion of contents in basic subjects which will be necessary when students come to study other disciplines in later years of the course.

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

Lectures are taught in the classroom with a blackboard, slide projector and overhead projector as well as computer and audiovisual equipment for teaching purposes. Training is also done in the laboratory, clinical practice at the Hospital and practical classes at the Pilot Plant and outside the centre on visits... The use of computer rooms for interactive learning, problem solving, finding and analysis of biological samples is increasingly common. For these reasons the Dean's Board coordinate the use of the 4 Computer Rooms available for different subjects.

We should also mention the virtual campus which, as a support method, will undoubtedly be of help in adapting to the European credit system.

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

The many teaching support materials provided by teachers are available to students for photocopying or on department websites, or on the university virtual campus so they are available via the computer.

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.

The need to establish permanent contact with society and the increasing need for practical training for our students have lead us to develop an efficient regional, national and international agreement policy which enables us, firstly to keep in touch with the world and secondly, to provide contacts with establishments where our students can do practical training. Via this system our students (and also teachers) are able to carry out, mainly practical activities, in public and private institutions in surrounding national regions, in Europe and Latin American countries.

As an example we could mention the agreements signed with Veterinary Faculties in Latin America which have enabled several students to receive practical training: 4 in 2003, 10 in 2004 and 16 in 2005, when we also received students from Argentina.

There are also Agreements signed with Research Institutes and Technological Transfer Centres in the Faculty's area of influence which enables us to contact important cattle farms where our students can train. Thanks to the signing of the Agreement with the Horse Breeding Centre of the Defense Ministry we have been able to organise training there for our students. We should also mention here the signing of an Agreement with the most important agricultural enterprises in the area and professional Colleges and Associations.

TRAINING IN COMPANIES

- TRAINING ORGANISED BY UNIVERSA

Student training in companies is usually organised by Universa (University Students for Companies, an entity created by an agreement signed between the UZ and Government of Aragón). The objectives of this training is to bring the academic and business world closer together. Aiming to unify criteria across the whole university community, and always under the Royal Decree for Educational Cooperation Programmes which governs all Spanish universities, the training is administered centrally. It is for Second Cycle students. For curriculum purposes this training fits into the external training element of the 2nd Cycle of the degree in Veterinary Science. The list of companies is constantly up-dated and often changes as it is constantly being enlarged.

The head of external training in the Veterinary Faculty is the Vice Dean for External Training and Exchange Programmes.

Activities organised in 2004:

- Presentation of the offer of Summer training placements for the 2003-2004 academic year (6th May)
- Number of placements carried out in 2003-04: Universa presents an annual report on placements (made available to the Dean's Board). During the 2003-2004 164 placements were carried out by students from the Veterinary Faculty distributed as follows:

Veterinary Science Degree	155
Bromatology	20
Animal Production.....	22
Medicine and Health.....	113

CLINICAL RECORDS: Preparation and collection of clinical records to register the clinical cases "attended" by veterinary students.

- PLACEMENTS in Diputación General de Aragón (DGA)

Second Cycle students may do training in the Summer months dependant on the Health and Consumer Department of the DGA of the three provinces of the Autonomous community of Aragón (slaughterhouses and veterinary areas). These placements are organised by the Central Secretary.

Placements in 2004:

- Placements offered in the 2003-04 academic year: see Annex n 5
- 11 students from Veterinary Science and 3 from CTA.

The distribution of Centres is as follows:

- 5 in the Provincial Department of Public Health in Zaragoza
- 5 in the Veterinary Area of Alagón
- 3 in the Provincial Department of Public Health in Huesca
- 1 in the Provincial of Public Health in Teruel.

- OVERSEAS PLACEMENTS

Leonardo Programme

The Mobility measure of the Leonardo da Vinci programme of the European Union supports transnational mobility and offers veterinary students the opportunity to improve their skills and individual specialities with a view to improving their chances of finding employment and entering the work market.

Thanks to the excellent relationship our Faculty holds with the Veterinary School of Toulouse (with movement of students between the two on the Sócrates Erasmus programme) consolidated on the signing of a bilateral agreement on 23rd January 2004, the Veterinary Faculty of the University of Zaragoza with the four National Veterinary Schools of France (NVS) in Alfort, Lyon, Nantes and Toulouse, coordinated by the NVS of Toulouse (the promoting body), a Mobility proposal was presented in February 2004, within the Leonardo da Vinci programme, which was approved. This project named Euroexprovet 2: Experience Vétérinaire Professionnelle Européene 2.

The concession of this project gives our students the opportunity to achieve grants for placements in European Companies. Schematically the characteristics of the Euroexprovert 2 grants are:

Sending bodies: Veterinary Faculty of, NVS of Toulouse, NVS of Alfort, NVS of Nantes and NVS of Lyon

Receiving bodies: private and public companies, in particular, clinics and veterinary hospitals, food companies, livestock exploitations, ADSs, pharmaceutical industries, research centres and others. The request for the project is supported by a large collection of companies in Spain, Germany, Belgium, Denmark, The United Kingdom, Ireland, Greece and Finland. However, placements may be proposed in other companies once the corresponding agreement is signed.

Beneficiaries: students registered in one of the *Sending bodies*

Activity to be completed: placement in a company (“professionalizing” time)

Length: 13 to 52 weeks

Aids: contributions to cover the expenses incurred by the beneficiary, particularly travelling expenses, accommodation, keep, insurance and linguistic and cultural training. The level of subsidy per person varies depending on the length of the exchange and the country, with a maximum 5.000 €per beneficiary. This maximum amount may be increased for invalids. In addition, a certain amount is designated to linguistic and cultural preparation not to exceed 500 €per beneficiary

Request: each candidate must complete a request form along with a *Curriculum Vitae*, academic report, letter of request, description of the placement to be done, letter of acceptance, reference letter (s) and expenses budget.

Selection of candidates: will be carried out by a European selection committee including representatives from the 5 sending bodies

Approval of the skills acquired on the placement: once the placement is completed it is to be evaluated. The “Europass-Training” will be used for recognition

Financing obtained: 15800 €+ 450 €(linguistic training)

The person responsible for this programme in the Veterinary Faculty is the Vice-Dean for External Placements and Exchange Programmes.

The Foundation Company/University of Zaragoza (FCUZ) deals with other projects within the Leonardo programme which students from the Veterinary Faculty may also opt for. Similarly Universa offers placements abroad.

5.2: THE TEACHING ENVIRONMENT

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

The Science Education Institute offers training during the first and second four-month term aimed at University students to help provide them with the tools they need to develop and organise their intellectual and personal work. Enrolment is free. Examples of activities programmed would be: self recognition techniques, personal balance, stress management,

relaxation techniques, self esteem and its relation to academic performance and personal well being, presentation techniques, how to prepare for selection processes,...

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

The Autonomous Government, aiming to encourage teachers in their efforts to improve both their training and methodology, periodically designates a teaching bonus to teachers; to achieve this bonus teachers must fulfill the minimum requirements, all related to the achievement of teaching objectives.

Describe other measures taken to improve the quality of teaching.

In the 2004-2005 academic year a new programme of personalised tutorials was introduced in our Centre for students on the Veterinary degree course, within the “Programme for Improvement and Innovation in Teaching” (Within the European framework for the achievement of the Higher Education Teaching Space) of the University of Zaragoza. This plan is coordinated by the Vice Dean for Academic and Student Planning. During the first experimental implementation in the Faculty, 24 tutor teachers joined, as academic advisors for 194 students (about 8-9 students/teacher) throughout the whole degree course. The programme will be enlarged over the following years since it improves communication, student-teacher relations and the efficiency of the teaching-learning process. In addition our University counts on the invaluable work of the Educational Science Institute (Instituto de Ciencias de la Educación-ICE) ESI which offers its support to the project via: training courses, advisory services, supervision and assessment.

5.3: THE EXAMINING 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?

A central examination policy does exist, established by the Vice chancellor's board but Centres have a certain degree of autonomy to adapt the general guidelines to their own particular characteristics.

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

Over the academic year there are three periods without classes reserves for examinations:

- The first examination period, lasting approximately 2 weeks, is at the end of January or beginning of February when the first round of examinations are programmed in the four –monthly subjects (C1) and partial exams in annual subjects.
- The second period of exams is from the first week in June to the 15th July. The second round of exams are held at this time in C1 subjects, first round exams in

four-monthly subjects from the second term (C2) and the first round in annual subjects.

- The third examination period takes place approximately from 1st to 20th September and is for the second round of annual subjects and C2.
- What form(s) of examination are used (written papers, multiple-choice questions, oral, practical, clinical examination, continuous assessment, etc.)?

A wide range of exam types are used depending on the different subjects. For most subjects there are both theoretical and practical exams. Oral exams are used on a smaller scale with most being written assessment, combining multiple choice with short questions and essays. In some subjects there is continual assessment.

Whatever the case the procedures and evaluation criteria used in the different subjects must be made public, in writing, at the beginning of the academic year and are available to students in the Academic Guide to the Faculty and on the department or teaching unit noticeboards.

- Is use made of external examiners?

External examiners are not normally used. However, after the review period of the evaluation test a student may appeal to a tribunal for re-correction at which teachers and students may express their views. The tribunal must adhere to the evaluation criteria as published for the examination.

A student or teacher may also request, under reasonable circumstances, of the Dean in global type tests, that the evaluation be carried out by a qualified tribunal designated by the Dean on the Departments proposal. Such tribunals are made up of three teachers and a substitute in the corresponding area of knowledge for the subject.

In spite of the fact that examination Regulations and tests in the University of Zaragoza allow for these cases, normally they are not used and it is the teacher of each subject who examines and assesses the students.

- How many retakes of an examination are allowed?

At two sessions per academic year and a maximum of six in total in each subject. If a student is "Absent" this time does not count.

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

There is no time limit.

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

With the new syllabus there are some limitations as to starting other years. More precisely, in order to move onto the second cycle (3rd year) students must have achieved a minimum of 75% core and compulsory credits from the first cycle, amounting to a minimum of 92.25 credits. In order to get into fourth year 90% of the core and compulsory credits from the first cycle must have been achieved (110.70 credits).

5.4: EVALUATION OF TEACHING

Describe the method(s) to assess the quality of teaching 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.

The University of Zaragoza has a system for the assessment and control of teaching which is applied in all Centres.

Annually students complete questionnaires rating different aspects of teaching for each subject and for all teachers who teach them. Each item is scored from 1 to 5.

The first questions on the questionnaire rate the SUBJECT as a whole in aspects such as: definition of the objectives involved, difficulty, range of the programme, importance of contents, usefulness of resources recommended, conditions and facilities for theoretical and practical classes...

After this the questionnaire assesses TEACHING STAFF under 4 sections:

- The first to rate attendance and punctuality.
- The second to rate the teacher's knowledge of the subject taught.
- The third section refers to class preparation, teaching methodology and efficiency in communicating knowledge.
- The last section refers to student-teacher relations, the extent to which teachers encourage participation and create interest in the subject, how available they are for tutorials, questions...

The questionnaires are processed by the Calculus Centre of the University and each teacher receives their own results. Later the Teaching and Assessment Commission of the Veterinary Faculty analyses the results of the analysis of the questionnaires and draws up a global report.

In addition it analyses the results of each teacher individually and, where necessary, requests the extra training it feels may be needed. Finally a report is made for each teacher for each subject they teach. The report states whether the assessment has been positive or negative.

As a general rule, an assessment is considered as negative when the average score is less than 2 in the first section of questions or less than 2 in at least two of the three following sections.

Additionally, for positive assessment reports, a personal report is included about on the results obtained. Thus, if an average overall score of over three is achieved in all sections it is noted that the results are completely satisfactory. If a score of less than three is obtained in any section recommendations are made for the aspects involved on how they should be improved.

Both the overall annual teaching assessment and the teachers' assessment reports are sent out every year from the Centres to the University Teaching Commission.

The Centre, Departments and Students all take part in the assessment process but the general process is established by the University itself.

Those responsible for the questionnaires being completed in our Faculty are the coordinating teachers of the different subjects in coordination with the student delegates of the teaching groups and both sign the envelopes in which the questionnaires of each teacher are placed. The Centre Secretary also takes part in the process keeping the coordinating teachers informed at all times about the process starting and providing all the documents needed.

The students play an active role in the assessment process with their opinions and teachers also do so via suggestions or additional reports relative to their teaching activity which may be sent at any time to the Teaching Commission.

5.5: STUDENT WELFARE

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

The University of Zaragoza has several halls of Residence located on the campus in the provinces of Zaragoza, Huesca and Teruel.

These residences offer services and activities for the students staying there with cinemas, theatres, sports activities, dining rooms and cafeterias, etc.

Students obtain information about these residences and other types of accommodation (flats to share with other students, etc) on the website of the University Accommodation Service (<http://wzar.unizar.es/ciur/alojamiento.html>), or contact them directly on (<http://wzar.unizar.es/cm/unizar.html>).

The University of Zaragoza has sports facilities for the use of members of the University community. The Multisports Pavilion is noteworthy with gyms, rockodrome, saunas and classrooms. There is also a University Stadium with athletics tracks, rugby field, basketball court, handball, 5-a-side football, fronton and hockey field.

The Sporting Activities Service of the University organises activities and courses for the university all year round (<http://www.unizar.es/deportes>).

The Faculty does not have its own sports installations which, considering the distance from the central campus, is an inconvenience for our students.

The Faculty has a dining room-cafeteria, studyrooms, etc. (For further details see Chapter 6).

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

As a result of a cooperation agreement between the University and the Zaragoza Council the Youth Advisory Service of the University was created. (<http://wzar.unizar.es/servicios/asesorias/asesorias.htm>)

Students are attended by qualified professionals who help them solve legal problems, sexual problems, problems with studies, psychological problems and try basically to offer help and support, analysing the case and helping to find the resources needed to solve the problems.

Also, in the University of Zaragoza there is a Psychological Advisory Service for students in the Educational Science Institute (<http://www.unizar.es/ice/orien.html>). The purpose of this service, which is free, is to help students solve a wide range of problems such as: careers advice, problems with exam preparation, excessive nervous tension, impeded performance, disproportionate fears, feelings of personal insecurity, difficulties with interpersonal communications, discontent with physical appearance and any other type of problems.

Should a student of the Centre have problems they may count on this support which is very efficient. The system of tutorials helps detect these problems creating confidence between students and tutor teachers.

At the Faculty, via Universa, training talks are offered to students to help them prepare for the labour market.

2. COMMENTS

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

Comment on the usefulness of external examiners.

We have no experience in this area.

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

At University level students are represented by the Students Council. Within the Faculty they are represented by the Students Delegation.

Veterinary students participate in government associated bodies, hearings, consultations and representations by forming part of them.

There is student representation on the Faculty Board, the most important body in the government of the Centre. Its work involves the approval of proposals to add or remove titles or courses and its own studies organised by the Centre and propose points on the syllabus for revision or modification.

Additionally they take part in the annual control and assessment of teaching by forming part of commission made up of members of the centre teaching commission, department representatives, students from the centre and two representatives from the council of students in the Centre.

3. SUGGESTIONS

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

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

The examination system is quite efficient in testing both theory and practice. It may be possible to improve it by introducing external examiners.

At the moment, as mentioned in previous sections, we favour the system of individual tutorials for all students along with the improvement of teaching methodology by means of teachers getting more involved in new technology. We are also trying, year by year, to improve practical training by optimizing the use of the Veterinary Teaching Hospital which was opened recently and the Pilot Plant for Food Science and Technology which is more consolidated.

With a view to steadily introducing European credits it would be advisable to reduce the number of teaching hours to be attended, and increase, via new teaching methods, the number of hours of a different type of partial-attendance teaching.

The restructuring of programmes is required, not only to avoid repetition and continuation of contents but in the light of the new tendencies to be brought in with the new regulations for degree and post graduate titles. With this in mind, better coordination of the curriculum design will be needed with professionals and private colleges.



CHAPTER 6: FACILITIES AND EQUIPMENT

Chapter 6: FACILITIES AND EQUIPMENT

1. FACTUAL INFORMATION

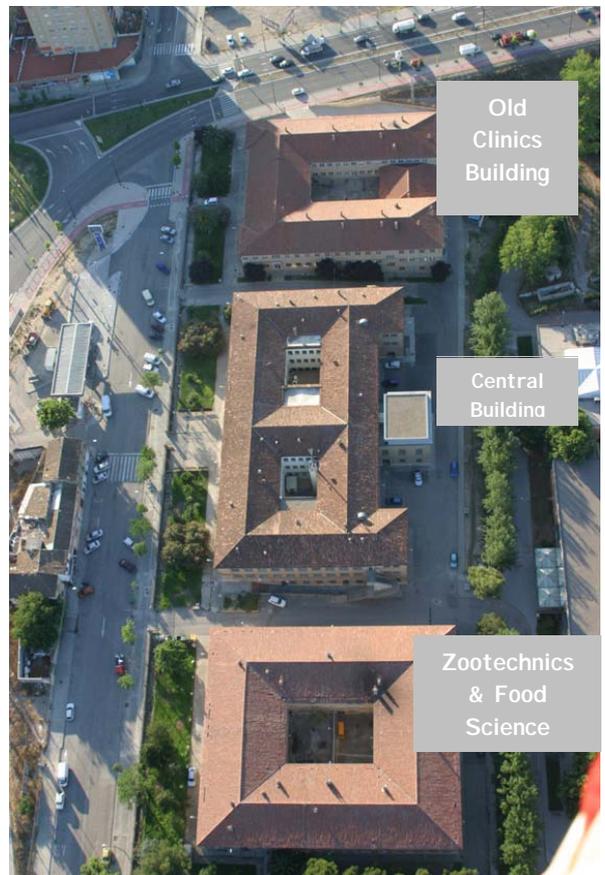
6.1: Premises in general

The Faculty of Veterinary Science, situated on the so-called Miguel Servet Campus with a total area of 78,764 m², forms part of the University of Zaragoza. Well communicated with the city centre by two regular bus services, it is about 4km from the Central University Campus where the Rector's office is situated. The Miguel Servet Campus is made up of different buildings including the Veterinary Hospital Clinic, the Food Science and Technology Pilot Plant and the service buildings for animal experiments which have been renovated recently.

The old *Clinics Building*, which is under renovation, at present, houses the veterinary campus maintenance team, one computer room and the Regional Spongiform Encephalopathy Laboratory.

Next to the Clinics Building, the *Central Building* (see photo), houses several teaching areas (Physics, Chemistry, Mathematics, Physiology, Genetics, Biochemistry, Microbiology, Pharmacology, Toxicology, Philology), Laboratories, 7 classrooms, central services Administration and Secretary's, Office, Dean's Office, Reprography, Audiovisual Service and Porter's Lodge.

In the *Zootechnics and Food Science Building*, next to central building (see photo), are the areas of Anatomy and Embryology, Food and Nutrition, Food Hygiene and Inspection, Food Technology, Agriculture and Animal Production. Also the head offices of the following departments: Anatomy, Animal Embryology and Genetics, Agriculture and Agrarian Economy, Animal Production and Food Science as well as classrooms and laboratories. Particularly worth mention the Agriculture and Agrarian Economy with excellent bibliographical resources

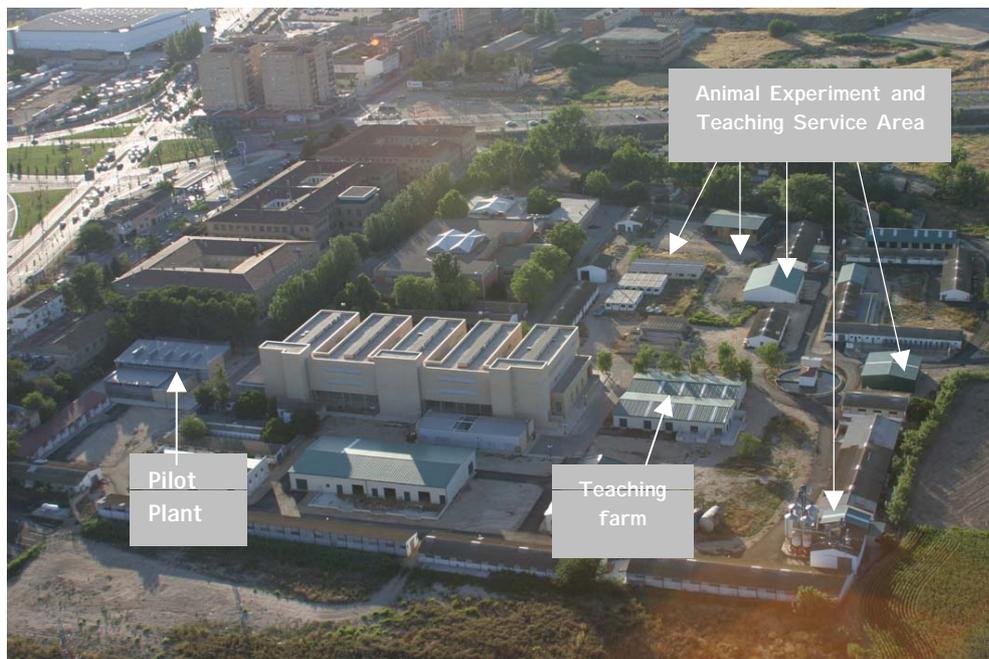


Behind these three buildings is the *Lecture Room Building* with its 4 classrooms, 2 computer rooms, autopsy room, library, staff room and cafeteria. Researchers from the National Reference Centre for Spongiform Encephalopathies perform their work in this building.

To the left of the *Lecture Room Building* is the *Veterinary Teaching Hospital* of 7,370 m², with the small and large animal clinic and different meeting rooms on the ground floor. On the first floor are the teaching laboratories, the aquiculture laboratory, the radioisotopes service, laundry, studyroom with computer facilities and an administrative area with a self-access language studyroom. The second floor is exclusively for departments.

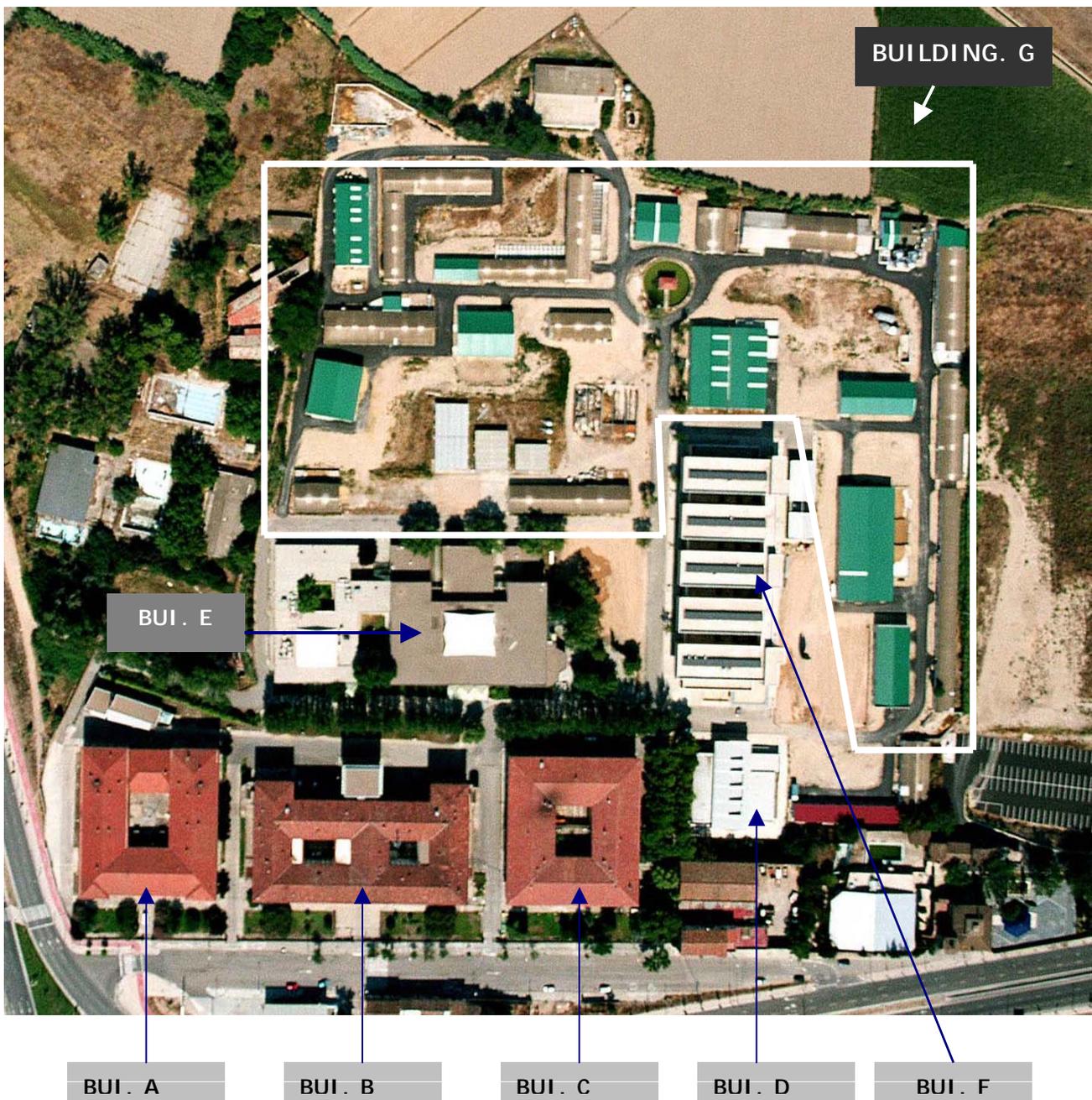


Finally the *animal experiment and teaching service area* with its 10,043m² building (see the teaching building) where the Animal Experiment Support Service works and the *Food Science and Technology Pilot Plant*, 1 samples room, a processing room and offices.



MIGUEL SERVET CAMPUS PLAN

- Building A: Old Clinics Building
- Building B: Central Building
- Building C: Zootechnics
- Building D: Food Science and Technology Pilot Plant
- Building E: Lecture Room Building
- Building F: Veterinary Teaching Hospital
- Building G: Animal Experiment Support Service and Teaching Farm



6.2: PREMISES USED FOR CLINICS AND HOSPITALISATION

With regards to the installations used for hospitalization and clinic we must distinguish clearly between the Veterinary Teaching Hospital (VTH) and the Animal Experiment Support Service which, apart from being a support service for research dependent on the Vice Chancellor's office for Research of the University of Zaragoza, also takes in ill animals for teaching purposes, in fact in the last restructuring process, a building exclusively for healthy and ill animals was included.

Table 6.2.1: Places available for clinics and hospitalisation (Teaching Hospital)

- number of hospitalisation places for cattle	0
- number of hospitalisation places for horses	7
- number of hospitalisation places for small ruminants	3
- number of hospitalisation places for pigs	3
- number of hospitalisation places for dogs	15
- number of hospitalisation places for cats	10

Number of animals that can be accommodated in isolation facilities;

- small animals	5
- farm animals and horses	0

Table 6.2.2: Places available for clinics and hospitalization which the Animal Experiment Support Service could offer to the Veterinary hospital clinic.

- number of hospitalisation places for cattle	14
- number of hospitalisation places for horses	5
- number of hospitalisation places for small ruminants	50
- number of hospitalisation places for pigs	0
- number of hospitalisation places for dogs	0
- number of hospitalisation places for cats	0

Number of animals that can be accommodated in isolation facilities;

- small animals	5
- farm animals and horses	2

6.3: PREMISES FOR ANIMALS

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

The animals used for practical classes are kept in the teaching building where the 960 m² are distributed as follows:

- One space for penning sheep with a small outdoor pen
- One hall with 9 boxes for stabling horses
- One stall for cows with an outdoor pen to hold ten adult animals
- Three examination rooms
- Storerooms for fodder, cleaning equipment and tools.

One of the examination halls has a pen big enough for cows and one immobilizing frame for cattle.

6.4: PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

Table 6.4.1: **Premises for lecturing**

Number of places per lecture hall

Hall	A	B	C	D	n° 1	n° 2	n° 3	n° 4
Places	240	240	240	240	130	112	63	63

Number of places per lecture hall (continued)

Hall	n° 5	n° 6	n° 7	Main Hall	Main Lecture Theatre	Bromatology Lecture room	Production Lecture room
Places	112	112	112	336	87	84	78

Total number of places in lecture halls: 2,249

Table 6.4.2: : **Premises for group work**

Number of places in the rooms for group work

Room	n 1	n 2	n 3	n 4	n 5	n 6	n 7	n 8
Places	10	10	10	14	12	10	10	12

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

Room	n 9	n 10	n 11
Places	10	10	6

Total number of places in rooms for group work: 114

Table 6.4.3: Premises for practical work								
Number of laboratories for practical work by students								
Number of places per laboratory								
Rooms	n 1	n 2	n 3	n 4	n 5	n 6	n 7	n 8
Places	22	56	40	8	12	10	15	8
Number of places per laboratory (continued)								
Rooms	n 9	n 10	n 11	n 12	n 13	n 14	n 15	n 16
Places	8	18	18	10	5	10	10	10
Number of places per laboratory (continued)								
Rooms	n 17	n 18	n 19	n 20	n 21	n 22	n 23	n 24
Places	10	10	10	14	6	10	15	10
Number of places per laboratory (continued)								
Rooms	n 25	n 26	n 27	n 28	n 29	n 30	n 31	n 32
Places	16	30	8	12	6	6	6	6
Total number of places in laboratories: 435								

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).

In new or re-furbished buildings (Hospital Building, Pilot Plant, Lecture Room Building and Central Building) fire installations are complete and comply with regulations. There are extinguishers and hoses correctly marked and smoke detectors connected to the main desk and an alarm. In the most recent buildings there are detectors in nearly all offices and rooms. The lecture room building and central building have emergency exits. The zootechnic building is fitted with outlets for connecting fire hoses.

On the exterior face of buildings and on the rest of the campus there are connecting points for fire hoses.

In the laboratories there are first aid kits and, in case of accident, staff in charge of practical training react and decide what is to be done.

There are eyewashes in the new or refurbished buildings (Hospital Building, Food Science and Technology Pilot Plant, Lecture Room Building and Central Building). In the hospital Building there are also emergency sprinklers.

Students are normally informed about basic first aid regulations and safety measures either in the first training session or just before it. In some cases this information is handed out in writing or displayed at the laboratory entrance. The information is also published in the academic guide.

A lab coat must be worn in all laboratories where chemical products or biological materials are handled and special clothing and footwear for handling animals or working in the autopsy room. In the autopsy room aprons belonging to the room are used.

In the ante-chamber and changing rooms of the autopsy rooms there are warning signs about access regulations and the room is only open when a technician or teachers are present.

In microbiology and infectious pathology laboratories the rules are stricter with regards to safety and disinfection of work areas and in case of leakage. All the material is prepared and disposed of later by trained staff. Dangerous substances are never used, except weak pathogens, under controlled conditions, supervised by teachers. There is exhaustive information for students on working habits and instructions in case of accident.

6.5: DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

Diagnostic laboratories

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

Central clinical support services

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

a) Diagnostic laboratory for infectious diseases

Offers an analytical service for infectious diseases in pets. The laboratory is completely equipped and situated in the hospital laboratory building. Ten people are employed the full or part time.

b) Ichthyopathology Laboratory

A service to provide diagnosis and advice about aquatic species, especially salmonides, cyprinides and crustaceans. It serves many Autonomous Communities and companies in the sector. It is an Officially Authorized Laboratory for the Diagnosis of diseases of the Government of Aragón. Eight people work in the service full or part time.

c) Microbiology and serology Laboratory

A service dedicated to the microbiological diagnosis of all types of samples for microbiological study, including the diagnosis of bacterial and fungal diseases in pets. It also carries out serological diagnosis of numerous infectious diseases. Six people are employed in this service.

d) Anatomopathological diagnosis laboratory

Carries out post mortem research on bodies sent to the Faculty from outside the hospital or from the Veterinary Teaching Hospital. Biopsies are also performed for numerous veterinary clinics. Agreements are made with companies and research groups. The laboratory is situated in the installations of the Veterinary Medicine Department and ten people work there.

e) Diagnostic Laboratory for wild animals

This Laboratory carries out analysis of wild animals from the region. Anatomopathological Methodology is used along with microbiological and toxicological methods. There is one person employed by the centre and two on contract.

f) National reference centre for animal spongiform encephalopathies

A Reference Centre for the diagnosis of EET in Spain. Here samples from suspicious animals from all over Spain which may suffer from EET are analysed and unclear or positive cases detected in the CCAA Spanish Laboratories are confirmed. Seven people work here. The location is planned to be in an ad hoc building to be built soon.

g) Spongiform Encephalopathies Regional Diagnostic Laboratory

A laboratory dedicated to the diagnosis of these diseases via rapid tests on animals bred for human consumption which have died on the farm, always from the community of Aragón. Five people work on the service which is located in the Clinics building in the faculty awaiting removal to the new building to be built soon.

h) Biochemical genetics laboratory

A laboratory dedicated to the service of solving genetically based problems using the most advanced methodology. Twelve people work here.

i) Epidemiology and biostatistics service.

A service to support and advise about all statistical and experimental studies especially referring to design, collection and analysis of data. Two people work in this service.

j) The Pig advisory and diagnostic service

It offers a multi-disciplinary diagnostic service for pig farming including pathological aspects, reproduction, genetics, nutrition, environment and animal welfare. It also covers aspects of pork quality and hygiene and epidemiological advice. Twenty people work in this service.

k) Dermatological veterinary diagnostic service

A service and laboratory for skin and hair diseases in pets. It offers advice on pathological symptoms on the skin, hair, ears, hooves and other cutaneous parts. It carries out and interprets all sorts of laboratory techniques used in veterinary dermatological analysis. Four people work in this service.

l) Radioisotope service

Since the Radioisotope Service is the only radioactive installation in the Centre all experiments where radioactive isotopes are used should be carried out here. It is open to the Departments of the Veterinary Faculty and other bodies with which agreements are held.

Its work is mainly to support research although it is also prepared to provide clinical support. One person works here.

6.6: SLAUGHTERHOUSE FACILITIES

Slaughterhouse Facilities

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

For training in the slaughterhouse there is an agreement signed with the Mercazaragoza Food unit which houses the main slaughterhouse of Zaragoza, which is one of the largest of Spain. The slaughterhouse in Zaragoza is situated 8km from the city centre on 16,000m² premises of which 4,000m² are stables, 8,000m² are fridges and freezers and 500m² selling space. 133 meat companies work at the slaughterhouse. A total of 24,222 Tm of meat is sold per year. The average figures of animals slaughtered are:

- ovine / caprine:1,700 heads / day
- porcine:225 heads / day
- bovine:100 heads / day
- equine: 30 heads / month

The Mercazaragoza slaughterhouse agrees to students attending the *pre-mortem* inspection process, slaughtering and *post-mortem* inspection. This is a compulsory part of training in Food Hygiene Inspection and Control (in 5th year).

The Mercazaragoza Food Unit is the largest food distribution platform in the Ebro Valley and one of the largest in Spain. On its nearly 800,000m² area, Mercazaragoza houses a food and agriculture complex including wholesale markets a whole range of logistic services and complementary food distribution activities.

The Veterinary Faculty of Zaragoza also has an agreement with the Health and Consumer Department of the Government of Aragón via which students can do training in regional slaughterhouses for one month. These placements are in Summer as part of external training. The slaughterhouses chosen may vary each year depending on the availability of veterinary inspectors but there are always places available in the provinces of Huesca, Teruel and Zaragoza. The list of slaughterhouses available, about 15 per year, is displayed on the notice board in the Faculty offices.

6.7: FOOD PROCESSING UNIT

Food Processing Unit

Describe briefly any access that the establishment has to food processing units.

Since 2002 the Veterinary Faculty in Zaragoza has the Food Science and Technology Pilot plant situated between the Zootechnics and Food Science buildings. The Pilot Plant is a 2-floor building with a total area of 961m². On the first floor are a 250m² food processing area and four training laboratories totalling 200m². On the second floor is a 180m² training laboratory. The food processing area has industrial equipment for processing meat and meat products, milk and dairy products, canning and storage of food in ripening rooms and

fridges. There is also food technology equipment (freezing tunnel, autoclave and basic operations equipment).

The main use of the Pilot Plant is for compulsory practical teaching of the Food Technology Course in 3rd year (50 hours per student) and the Food Hygiene and Inspection Course in 5th year (8 hours per student). The Pilot Plant is also used for practical teaching on optional courses Meat Science and Technology (60), Milk Science and Technology (60 hours) and Fish Science and Technology (15). The Pilot Plant is also used for research and food company service.

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 disposal of waste is carried out according to its prescribed category, that distinguishes, for each type, a system of management and specific disposal, in accordance to the national basic legislation (Law 10/1998, of April 21st) and regional legislation (Decree 29/1995, of February 21st, management of sanitary waste and Integral Plan of Waste Management of Aragón, published by Agreement of January the 11th 2005).

The waste generated in the different facilities of the Faculty of Veterinary are managed according to the classification that the mentioned legislation establishes:

I. Sanitary waste assimilable to urban residues are those free of specific contamination and do not present infection risks. They are eliminated together with the urban solid waste (cardboard, paper, stationary, factories, etc...). They do not require special conditions of storage and their collection is made daily by the ordinary municipal services.

II. Nonspecified sanitary waste: they require an additional treatment due to its potential risk of infection (clinical material, disposable clothes contaminated with blood, excretions...). They are placed in green polyethylene bags, with gauge 69, homologated by UNE 53-147-85 norm, and later introduced in bigger bags of identical color and material, with gauge 200, (class 6 of the UNE norm) and finally introduced in the corresponding containers. Domestic animals, carcasses of natural death animals and classified within epigraph II do not require any special performance of the authorized responsible; they are placed in specific containers and collected, on request, by the municipal services.

III. Specified sanitary waste or risk waste: due to the risk they represent to labor and public health (infectious waste with transmissible pathogenic agents, sharp waste, rest of infected animals and infectious animal waste) they require prevention measures in their collection, storage, treatment and elimination. They are stored in two qualified places, packaged in containers of rigid, impermeable, opaque and resistant material to electrostatics, with distinguishing label of risk and with two, five and sixty liters capacity. They are collected twice a week by authorized personnel or by request.

IV. Specified risk material (SRM): concerning farm animals with special category derived from the transmissible spongiform encephalopathies preventive regulation. It needs special identification and monitoring.

They are placed in differentiated and signalized containers in the Necropsy Room and collected, on demand, by a company specifically authorized for the transport, treatment and disposal of these waste.

V. Toxic and dangerous waste: so called by its chemical contamination. To the extent that they are generated, they are collected in a centralized warehouse specially prepared for this purpose. The packages that contain these wastes are properly labelled, with indication of the contained compounds and specific risks derived from their manipulation. They are collected by specialized and authorized personnel twice a year or with superior regularity if required.

VI. Cytostatic residues: they contain remains of these drugs. They are accumulated separately in containers, specially designed for this type of waste, of rigid, impermeable, resistant material to electrostatic charges. These containers have an indicative precaution label, differentiated from the other mentioned in epigraph III. They are collected twice a week by specialized and authorized personnel.

VII. Radioactive waste: exclusively from the 2nd category Radioactive Installation (RI) controlled and inspected by the Nuclear Safety Council (NSC) according to the regulations established in the nuclear legislation (Order ECO/1449/2003 and Decree 1836/1999).

Two types of radioactive waste are created in this RI:

A.- Long half- life:

The isotopes used in this radioactive installation are compounds labelled with β emissor such as ^{14}C or ^3H . Their respective activities are measured using a liquid scintillation counter, and in funtion of the values, processed following these two options:

1. Those NOT exceeding the activity limits established by the ECO/1449/2003 order are disposed of as conventional or chemical waste, as necessary.
2. Those exceeding the activity limits established in ECO/1449/2003 order are stored to be collected by a specialized company called ENRESA.

B.- Short half-life:

The procedure followed distinguishes between β and γ emissors.

β emission waste is placed in 2 cm thick perspex boxes until it declines.

γ emission waste is confined to a pit covered with 5 cm of lead in a store room with a 5 mm lead covering on floors and walls until it declines.

Decline is measured in both cases. When the ECO/1449/2003 Order's limit is no longer reached, the waste is kept for further two or three months for safety and then disposed of as normal chemical waste depending on the type.

All waste is stored in correctly labelled rooms which are isolated and have independently controlled ventilation.

6.9: FUTURE CHANGES

Future Changes

Outline any proposed changes to be made to the premises that will have a substantial effect on the establishment, and indicate the what stage they are at.

Trying to follow chronological order, the foreseeable future changes to be made to our installations, are as follows:

1. The Transmissible Spongiform Encephalopathy (TSE) Building. A new building upon which work is to begin this Summer and will take 18 months. It is to be built on the site at the far end of the Central Square of the Campus near the well and will be for diagnosis and research, so it will only be used for postgraduate and PhD classes.
2. The opening of the Computer Room on the first floor of the Hospital Building in the study room to be used for training where computers are required, while its main purpose will be for self-access use. Due for completion by the beginning of the 2005-2006 academic year.
3. The refurbishing of the ground floor and first floor of the Zootechnics building, a project already in its initial stage. The intention is to build computer rooms on the ground floor for a total of 44 students, to be used for practical classes requiring computers, combined with use as a self access room. Due for completion in the 2006-2007 academic year.
4. The enlargement of the Central Square of the Campus. There is no project or estimated date but we would like work to begin over the next two years. The present square would be enlarged to make it a meeting place on the Campus. The possibility of including a small sports-leisure area is being considered but, should this not be possible, the Dean's Board intend to make a sports and recreation area elsewhere on the Campus.
5. The Central car-park for the Campus and improvement of the traffic system. A main car-park is planned behind the Hospital Building to provide access for vehicles and space for parking in the area between the Central Building and the Lecture Room Building.
6. The refurbishing of the old Clinic Building. Included in the Long Term Plans for Infrastructures of the UZ for the distant future. The intention is to renovate part of the building and adapt it to the requirements of the Faculty (research laboratories, general equipment, etc.)

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 buildings presently available for the Faculty are adequately adapted to teaching at present, although modifications may become necessary when present and planned changes in teaching-learning methods are introduced. Moreover, teaching facilities, of which there are never enough, are adequate for teaching although most equipment used in teaching has come from research projects.

A 4-person team is available for general maintenance of the campus as well as support from central teams. Some maintenance services are contracted (gardening, air conditioning, etc).

3. SUGGESTIONS

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

It would be a good idea to reduce the size of the largest lecture rooms to have smaller spaces for teaching and group work.

More emphasis should also be placed on using cattle sheds for teaching purposes.

The teaching budget needs to be increased. More animals are needed to be used for training.

The maintenance budget for buildings and equipment should be increased.

Emergency exit facilities in buildings in general and regulations should be completed.



CHAPTER 7: ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

CHAPTER 7 ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

1. FACTUAL INFORMATION

7.1: BASIC SUBJECTS

Anatomy

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

A wide range of methods are used for teaching anatomy from traditional skeletons, bones and entrails preserved in formaldehyde, dog dissection, sheep and hens to on-line tri-dimensional shows on computer. Students also carry out voluntary work dissecting different types of animals (especially exotic species). There is a large collection of material (preserved viscera, bones...) available to students. The animals come from the town doghouse and are cats and dogs put to sleep for humane reasons. Sheep come from farms and are animals rejected from herds for different reasons. The rest of the animals are offered voluntarily by their owners. The bodies are soaked in preservative solutions so that they may be used throughout the teaching period and are kept in a cold room at 4° C. All animals are finally disposed of following the same procedure which will be described for general waste from Pathological Anatomy.

Pathology

Table 7.1: Number of necropsies over the past 3 years

species		Number of necropsies		
		year 2005	year 2004	year 2003
Farm/large animals	cattle	49	46	74
	equines	32	13	24
	small ruminants	947	692	1074
	pigs	57	62	106
	rabbits	128	32	52
	poultry	136	146	270
small/pets	dogs	174	173	227
	cats	13	15	34
	other pets	9	9	3

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.

Waste materials from the slaughterhouse are used. Weekly visits to Mercazaragoza are made for this purpose and entrails are transported to the Veterinary Faculty. The total volume samples from the slaughterhouse used for training purposes in 2003 was 1,392 kilos, in 2004 1,975 kilos and in 2005 2,025 kilos.

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.

a) Within the institution.

The veterinary Faculty is the headquarters for the Animal Experiment Service of Zaragoza University for which a privileged infrastructure is required to provide the animals needed for practical training, even though the purpose of this service is not mainly for teaching. There are 22 sheds and stabling for 56 cows, 49 calves, 6 weaning calves, 858 adult sheep, 410 sheep for food, 9 horses, 320 breeding rabbits, 2000 rabbits for food, 28 pigs, 3000 hens, 4000 chickens for food and 53 dogs kept individually. Further information about this service can be found on the website http://wzar.unizar.es/invest/sai/exp_ani/exp_ani.html

Practical work in animal production is currently carried out on:

- 200 sheep
- 500 rabbits
- 4,000 broilers
- 1,500 laying hens
- 20 beagle

The use the animals are put to varies depending on the subject and the content of the training class, ranging from digestive studies and nutritional valuation in Animal Feeding to aspects of rearing animals, teams and facilities, sanitary prevention etc. in Animal Production or external morphology, zoometry and identification, which are essential for the subjects of Ethology and Animal and Ethological Protection.

b) In other places the institution has access to:

Over the academic year visits are made to exploitations of different types of animals enabling students to complete their theoretical knowledge.

Occasionally, other exploitations are visited although it is usually the same ones. We point out the following:

- **Dairy cattle:** TAUSTE GANADERA with approximately 2,000 dairy cows.
- **Beef cattle:** a farm with 200 cows (normally in Pina de Ebro in the province of Zaragoza).

- **Sheep for meat:** a farm with 1,500 sheep (normally in Monegrillo in the province of Zaragoza).
- **Sheep for milk:** a farm with 400 sheep for milk (in Fuentes de Ebro or in Monegrillo, both in the province of Zaragoza).
- **Pig farms:** 2 farms, one for breeding with 1,300 animals and rearing up to 18 kilos in La Almunia de Doña Godina, and another large pork producer in various places.
- **Rabbits:** a breeding farm of 500 animals close to Zaragoza.
- **Poultry:**
 - a) Breeding and incubation. Installations for future breeding chicks, adult breeding broilers and incubation plan in GRUPO SADA, in Alfaro (La Rioja).
 - b) Egg production. Installations for future layers, production layers and egg classification plant GRANJA VIRGEN DEL ROSARIO de Villarreal de Huerva (Zaragoza).
 - c) Chicken production. Shed for table broilers HNOS. LÓPEZ JOVEN in Cosuenda (Zaragoza) and installations for breeding free-range chickens in the company “EL POLLO DE LA ABUELA” as well as their own slaughterhouse in La Almunia (Zaragoza).
- **Horses:** 80-100 in the Ruiseñores Equestrian Centre in Zaragoza.

It should be pointed out that in the case of pig farming training is with an associated teacher on contract for this purpose. Students visit pig farms along with the teacher to learn how they work. The following aspects are covered amongst others: atmospheric conditions (temperature, relative humidity, etc) revision of installations, revision of the productive flow, detection of animals on heat, obtaining and preparation of semen dosage, insemination, diagnosis of gestation via scan and autopsy of siblings.

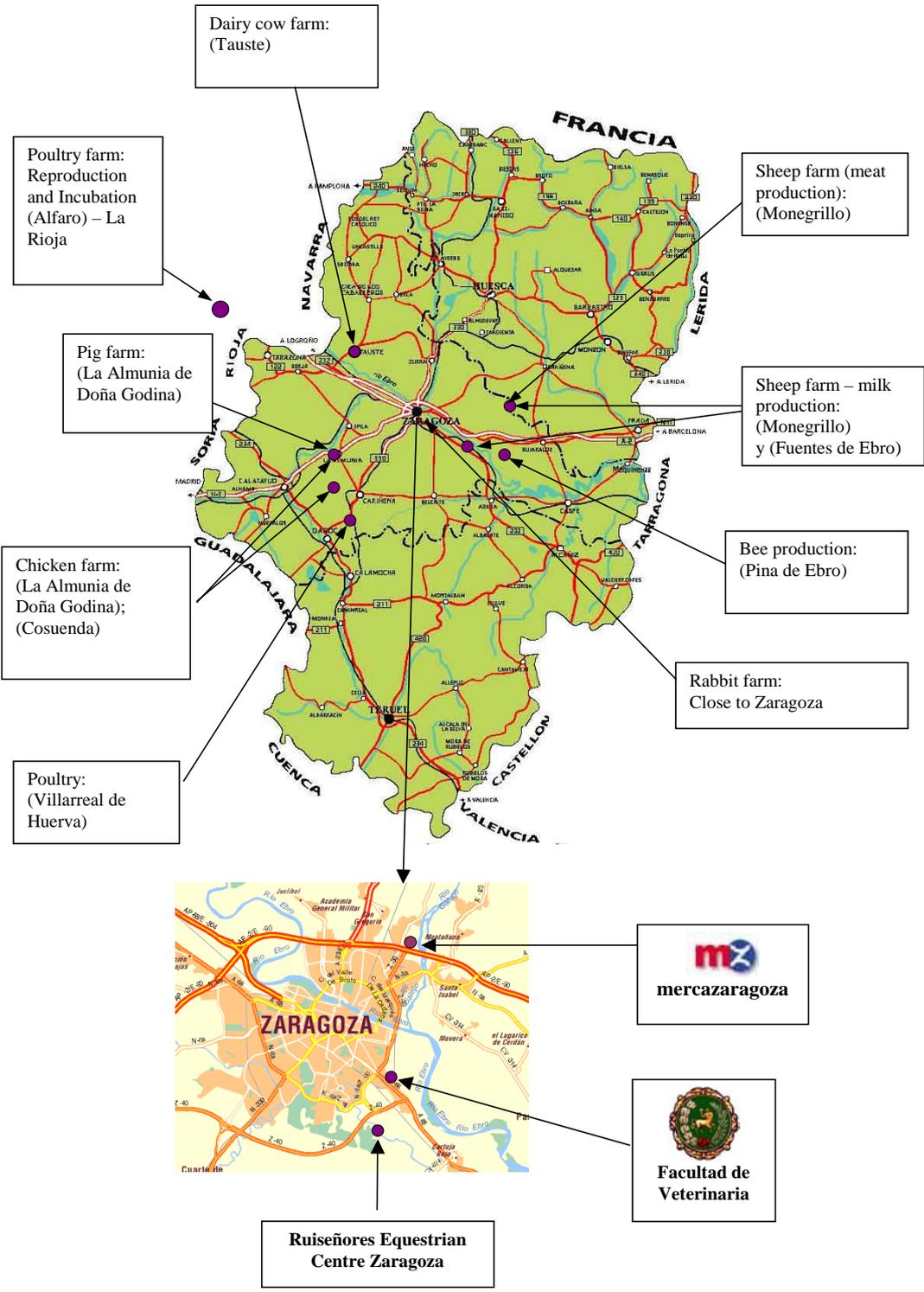
7.3. FOOD HYGIENE

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

On the Food Hygiene Inspection and Control Course (5th year) slaughterhouse inspection training is carried out at the Mercazaragoza slaughterhouse. This slaughterhouse processes sheep, goats, pigs, cows and horses from all of which carcasses and viscera are used by students. For training in the laboratory, meat, meat products, milk, dairy products, fish and seafood, fish products and eggs are purchased from commercial establishments. For training at the Pilot Plant, milk from a milk company in Zaragoza is used.

On the General Pathological Anatomy Course, (3rd year), students complete training at macroscopic level to observe damage in pathological organs. This involves the observation, description and diagnosis of damage to organs from the Mercazaragoza slaughterhouse. On the Special Pathological Anatomy course (4th year) students do practical training in macroscopic diagnosis (slaughterhouse) studying damage found in organs rejected by the slaughterhouse.

External facilities



7.4: CONSULTATIONS

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

The clinic is open every week in the year.

The surgery is open 5 days a week for patients with appointments and every day of the week for emergencies (real or suspected).

On working days from Monday to Friday the hospital timetable is 10h to 17h. Emergency services, intensive care and in-patients are open permanently.

The days and timetables of the different Surgeries and Specialists are as follows:

Pets	
Internal Medicine	Monday-Friday: 11:00-14:00
General operation surgery	Monday-Friday: 11:00-14:00
Traumatology surgery ¹	Monday-Friday: 11:00-14:00
Reproduction	Monday-Friday: 11:00-14:00
Ethology	Monday: 16:00-19:00
Oncology	Wednesday: 16:00-19:00
Dermatology	Tuesday: 16:00-19:00
Ophthalmology	Monday and Thursday: 16:00-19:00
Dentistry	Monday: 11:00-14:00
Exotic animals	Friday: 16:00-19:00
Cardiology	Thursday: 16:00-19:00
Radiology	Monday-Friday: 10:00 until necessary
Scans	Monday-Friday: 11:00-14:00
Anaesthetics	Monday-Friday: 10:00 until necessary
Operating surgery	Monday-Friday: 10:00 until necessary
Traumatology 1 (operating theatre)	Monday-Friday: 10:00 until necessary
Rigid and flexible endoscopy	Monday-Friday: 11:00-14:00
Horses and farm animals	The Horse Medicine and Operations Service only deal with cases passed on to them 24 hours a day.

¹ Orthopaedics and Neurosurgery are included.

Table 7.4: Number of animals received for consultation in the past three years..

Species		Number of patients		
		year 2005	year 2004	Year 2003
Farm/large animals	cattle ^(*1)	818 ^(*4)	736	662
	equines ^{(*2) (*3)}	825	618	600
	small ruminants ^(*1)	2,855	2,569	2,312
	pigs ^(*1)	2,982	2,684	2,416
	other farm animals	0	0	0
Small/pets	dogs	6,297	6,181	5,548
	cats	870	838	798
	other pets ^(*2)	204	102	57

^(*1) The number of patients included refers to those attended to by the associated teachers for these types of animal. These figures are difficult to calculate as the visits are counted per farm.

^(*2) These animals are mainly attended to at the Veterinary Teaching Hospital and those visited by associated teachers for outside training.

^(*3) This increase in the figures is due to the beginning of the Veterinary Teaching Hospital

^(*4) The figure in Chart refers to the number of individual animals students work with. One part of the cow clinic is for group pathology, where we should count the number of farms visited rather than the number of animals.

Note: The Area of Large Animal Hospital began work in the last month of 2004. For this reason there were such a low number of cases of these types in previous years.

7.5: HOSPITALISATION

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

Species		Number of patients		
		year 2005	year 2004	year 2003
Farm/large animals	cattle	3		
	equines	180	15	13
	small ruminants	0		
	pigs	2		
	other farm animals*	0	0	0
small/pets	dogs	732	718	311
	cats	160	152	60
	other pets	4	5	4

Note: The 24-hour Hospitalization Service began work in the Area of Small Animals, in the second half of 2003. This is the reason for the increase in the number of hospital cases in 2004 and 2005 with respect to 2003 when the data referred only to half of the year.

Regarding the Area of Large Animals, we insist again, that work began in the last month of 2004, including the 24-hour Hospitalization Service.

Students attend most of the cases of ruminants and all cases of pigs in installations outside the Hospital with external training teachers. For this reason there are no animals of these kinds in the hospital.

7.6: VEHICLES FOR ANIMAL TRANSPORT

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

State whether or not clients are charged for this service.

The Faculty does not have a vehicle to transport sick animals to its installations, so the customer has to pay for this.

7.7: EMERGENCY SERVICE

Outline what in-house emergency service is available.

At times when lectures are not running, weekends and holidays, the associated teachers have the mobile phone numbers of students interested in going out on visits so they may attend all emergencies that come up.

The vehicles used to transport students, as mentioned, are those normally used by the teachers themselves in their daily clinical work. The number of students does not depend on the size of the vehicle, but on how many the farmers are willing to allow into the farm.

Of the animals treated, a small percentage can be taken into hospital in the VTH to be attended more closely and individually or they may be taken to the autopsy room at the centre for autopsy and corresponding anatomopathological study.

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.

The mobile clinic is run by associated teachers hired for this purpose who take students with them to visit their own customers' farms when they are called.

At the moment and within the clinical area, the Veterinary Faculty has associated teachers for:

- horses: 4
- pigs: 2
- sheep: 1
- cows: 1
- exotic and wild animals: 1
- slaughterhouse: 1

The number of practical hours per week done by those teachers is difficult to estimate as they vary. Every day they pick up two students, as previously arranged, and they go out on the visits programmed, depending on the calls received. A wide range of work is done on such visits depending on the customers' requirements. The working day of these teachers, and therefore of teaching, ends between 18 and 20 h.

7.9: OTHER INFORMATION

Indicate any noteworthy additional outexternal suppliers of material for clinical training purposes, such as animal charities, animals for slaughter, etc.

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

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 division, describe it.

Indicate what areas of clinical specialisation are covered, and to what extent.

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

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

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

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

The number of cases attended have increased considerably but not in an ideal proportion. In the case of horses the increase has been more drastic as the Veterinary Hospital Clinic is new and a vet was employed with extensive contacts in the private sector. As mentioned before, the Veterinary Teaching Hospital is open 24-hours for both small and large animals, thanks to the rotation system for residential and the number of permanent staff employed for the University (4 vets, 2 administrative staff, 1 support technician).

The pricing system both for large and small animals abides by the rules established by the General Council of Veterinary Colleges.

Clinical records are filed both on paper and electronically using the QVET programme, which is simple for students to use for their clinical work. Data bases are also available for x-rays and scans mainly to separate cases useful for teaching from the rest.

The coordination of different specialists is essential in order to prepare complete clinical cases for integrated teaching with multimedia presentation.

Cooperation with external clinics for practical work is important and is related to in the section about agreements.

The Directors of the Veterinary Teaching Hospital are trying to arrange agreements with the official College of Veterinary Surgeons and vets to extend its services to influence areas close to the Faculty.

7.10: Ratios

7.10.1: Animals available for clinical work:

Ratio: students/production animals

$$\frac{\text{number of students graduated in the last year}}{\text{number of production animals}} = \frac{145}{7,480} = \frac{1}{51.59}$$

Ratio: students / companion animals

$$\frac{\text{number of students graduated in the last year}}{\text{number of companion animals}} = \frac{145}{7,371} = \frac{1}{50.83}$$

7.10.2: Animals available for necropsy:

Ratio: students / post-mortem examinations

$$\frac{\text{number of students graduated in the last year}}{\text{number of cadavers necropsied}} = \frac{145}{1,188} = \frac{1}{8.19}$$

ratio figures: graduated in 03-04 and necropsies of 2004

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.

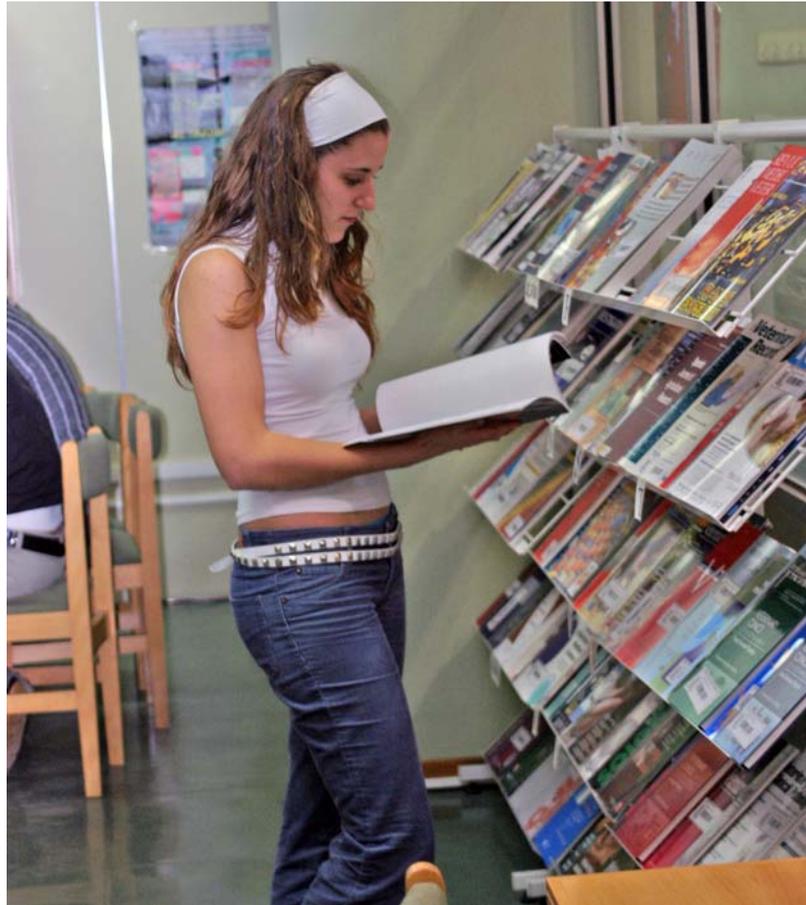
Several aspects of the Hospital Clinic are to be improved:

- Improvement of the diagnostic service on screen.
- Increase the number of practical cases.
- Increase the number of staff in administrative support and vets on permanent contracts.
- Increase the number of agreements with protection societies and farming groups.

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?

Obviously one priority is to acquire a vehicle fitted out as a mobile clinic and it would be desirable to have at least one other vehicle to transport students and also to review important aspects such as public liability and accident insurance for students. These requirements have been conveyed to the Dean's Board of our University on several occasions.



CHAPTER 8: LIBRARY AND LEARNING RESOURCES

Chapter 8 LIBRARY AND LEARNING RESOURCES

1. FACTUAL INFORMATION

8.1: LIBRARY

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

The Veterinary Faculty Library is a functional support unit for teaching and research. It comprises all the bibliographic, documentary and audiovisual assets acquired by the Centre and those from inheritances, donations and exchanges.

It is composed of the General Centre Library, Newspaper Library and Department Libraries.

Excluding the Department Libraries the total area occupied is 836 m² distributed as follows: Library and Newspaper Library 700 m², Store 84 m², Office 32 m² and catalogue room, plus photocopier 20 m².

The Veterinary Faculty Library forms part of the University Library and adides to the same rules. There are Regulations for the workings of the University of Zaragoza library which contain the rules for the workings of the General University Library, Faculty Libraries and schools with their corresponding Departments, Sections and Seminar Rooms.

Additionally in the Regulations for the workings of the Veterinary Faculty of the University of Zaragoza, articles 39 to 45 refer to the operation of this service.

The Library has its own Regulations, approved by the Faculty Board and drawn up by the Centre Library and Newspaper library Commission (Article 42).

It is composed of four teachers, two students and the technical staff of the Library. The election of members is carried out by sectors at elections called by the Dean every two years (Article 43).

Provide the following information for each of the main Faculty libraries.

Main library	
<ul style="list-style-type: none"> - is this specific to the veterinary training establishment? Yes - is this common to two or more establishments? No 	
State the library's annual operating budget over the past three years:	
(1)	
	Euros
Year 2004	172,208.53
Year 2003	163,195.05
Year 2002	155,775.46
Number of full-time employees (2)	8
Full time equivalents of part time employees	-
Number of journals received each year (in addition to books) (3)	2,039
Number of student reading places	216
Library opening hours::	Weekdays Weekends
during term-time	Mon. to Fri. 8,30 to 21,30 Saturdays 9,10 to 13,30
during vacations	Mon to Fri. to 8,30 a 14 h. Closed
Number of loans to students per academic year (4)	11,265
Give an outline description of any computerised document search system that is accessible to students (5)	

(1)

Concepts	Monographies	Periodicals	Purchase of access to data bases	TOTAL
2004	9,808	134,738.13	27,662.40	172,208.53
2003	10,079	124,682.23	28,433.82	163,195.05
2002	10,541	113,730.26	31,504.20	155,775.46
TOTAL	30,428	373,150.62	87,600.42	491,179.04

(2)

Number of full-time employees: 8

-4 Library Assistants

-1 Administrative Assistant

-3 Librarians

(3)

	2002	2003	2004
Subscriptions to magazines	259	266	272
Donations and magazine exchanges	176	176	176
Books purchase	1,223	1,244	1,291
Books donated or exchanged	274	938	300

Videos, CDs and audiovisual resources in general have not been included.

(4)

Lending refers only to home loan since the library room is free-access so it is not considered as lending. The first line refers to the total lending to teachers and students and the second exclusively to students (1st, 2nd and 3rd cycle, visiting students, UNED, etc.)

2002	2003	2004
10,384	11,368	11,265
9,508	9,937	9,869

There are two lending systems:

-Interuniversity lending, between different universities and

- The PEC system, or lending between centres within the University itself for one week in the case of students, third cycle students, Administrative staff and Services, AGRALUZ (University Past-Students Association) and Staff who come under University Agreements with other entities or for one month in the cases of teachers or interns. Three books may be taken out at any one time. Books may be reserved should they already be on loan at the time requested.

The system is widely used by our students especially from Health Science, Medicine and the Politechnic of Huesca, etc

(5)

Since 1995 the University of Zaragoza Library Catalogue has been computerised. The Library information and management system is, at present, Innopac Millenium. It enables books, magazines, journals and other library resources catalogued by all the Centre libraries of the University of Zaragoza to be accessed and located. New items may be catalogued and existing catalogues reconverted simultaneously.

The "Information Server", which supports the Library catalogue of the University of Zaragoza Library, is connected to INTERNET at <http://roble.unizar.es>. The catalogue of magazines in full text FARO may also be accessed here and databases.

It is possible to log on via the University of Zaragoza website (www.unizar.es). The Library website is: <http://wzar.unizar.es/doc/buz/bibliotecas/vet/bibliovet.html>. Items catalogued in the last months can also be consulted via the news page.

Consulting the Data Base.

In the Newspaper Library there are two computers which provide access to the Data Base Network on CD-ROM and those of the University of Zaragoza on line.

There are free data bases on Internet of which the bio medics and social ones are the most visited. Within bio medics we emphasize PubMed.

-PubMed:

Covers the areas of medicine, oncology, veterinary science, public health and pre-clinical sciences. It is the on line version of the Medline data base, complemented with other bibliographical references to magazine articles since 1996 and is up-dated daily. Access to this data base is free via Internet

www.ncbi.nlm.nih.gov/entrez/query.fcgi

Social sciences also enjoy free access to bases related to Food and Agriculture such as Spanish Agrarian Bibliography (INIA data base), AGRIS (FAO database) and AGRICOLA (AGRICultural Online Access) on Internet.

As far as databases only accessible from the University, most can be consulted via the CD-ROMS NETWORK by installing the Ultranet programme or on computers provided for this purpose in the Centre Libraries. In addition to these data base on CD-ROM the university has other access routes via internet. We point out the following:

-ISI Web of Science

-ISI Current Contents

-Biological Abstracts

It collects information from over 5,000 publications in the following subjects: Biology, Medicine, Veterinary Science, Agriculture, Biochemistry, Toxicology, Zoology and Ecology. It can be accessed from the CD-Rom network of the University.

-Cab Direct

Is a product from CABI Publishing and one of the most complete in the area of bio medics and agriculture. It contains over 4.5 million bibliographical records with temporary coverage since 1973. It is up-dated weekly. It can be accessed on line from the University on www.cabdirect.org/

-FSTA (Food Science and Technology Abstracts)

This data base contains information on Food Science and Technology. It contains bibliographical references from magazine articles, conference minutes, monographics, reviews, patents, reports, legislation, etc. Temporary coverage has been available since 1990 and is updated monthly. Access at present is from the CD-Roms network of the University of Zaragoza.

Subsidiary libraries of the establishment

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

There are 21 subsidiary libraries situated in different Departments as well as the Central one. Student access is via the teaching and administrative staff of the departments, as there are no staff allocated to the libraries.

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

Work is being done to catalogue all the books received in subsidiary libraries. At present there is about 50% still to be done.

8.2: INFORMATION TECHNOLOGY SERVICES

(a) Audio-visual service		
- is this specific to the veterinary training establishment? YES		
- is this common to two or more establishments? No, but it can be used by other Centres, Colleges or Veterinary association of this University		
Number of full-time employees	1	
Full time equivalents of part time employees	-	
Total number of videocassettes available	513 of which 91 are made by ourselves and 422 donations or purchases	
Total number of videocassettes that have been produced by the services in the past 5 years	12	
Is there a viewing room?	YES	
If so, indicate: (1)		
- the number of places	2	
- the number of hours it is open each week	92.5	
- the opening hours:	Weekdays	Weekends
during term-time	8:30 h to 21:30 h	9:00 h to 13:30 h
during vacations	8:30 h to 14:00 h	Closed

(1) We should make sure what we understand as a viewing room. We can consider as such the facilities in the Newspaper Library with two screens, two videos and one DVD. Also in the Main Hall and the Graded Hall (336 and 87 seats respectively) there is a projector and OHP, there is a projector and in room 4 a video. In theory any of the computer rooms could be considered as viewing room if DVDs can be taken in or Internet computers can connect to show Internet.

(Annex 6) Work done by the Audiovisual Service in 2004.

(Annex 7) Shows offered by the Audiovisual Services.

(b) Computer service	
Is the computer service/department:	
- specific to the veterinary training establishment?	YES (1)
- common to two or more establishments?	NO
Number of full-time employees	1
Full time equivalents of part time employees (2)	
Number of computers available in the service: (3)	109
- less than three years old	9
- more than three years old	100
Do students have free access to these computers for their own use?	Yes, in the student computer rooms
Is there a computer room for self-use by students?	Yes (4)
If there is, please indicate::	
- the number of places:	13
- the opening hours:	Weekdays Weekends
during term-time	8 to 21:30 h 9 to 13:30 h
during vacations	8 to 13:30 h Closed
Does the service/department provide teaching in the use of computers?	Yes (5)
Does the establishment use interactive CD-ROM for teaching?	Yes
If so, how many programmes are available?	1 (New Technology CD)

(1) It is specific to the Faculty in the sense that it service this centre exclusively but it depends on the University on occasions, for instance it is the University Statistics Centres that set up the communications.

(2) There is an intern 4 hours/day who changes each year. They are final year students.

(3) COMPUTER ROOMS AND LECTURE ROOMS

LECTURE COMPUTER ROOMS:

CLINIC HOSPITAL		
	Study room	There are 6 PCs of various old models at present. The refurbishing of the centre and installation of 20 new PCs is pending
	Computer lecture	8 PIV-1600 - 256 / 40 GB Computer
	Language room I	8 PIV-1600 - 256 / 40 GB Computer
CLINICS		
	PC rooms	7 P-IV 1500 - 128 Mb / 40 Gb - CD-Rom Computers 6 PIII-1000 - 128 / 20 - CD-Rom Computers
	Macintosh rooms	9 Mod. Pw 6100 Computers
CENTRAL		
		15 PIV-2.53 - 256 / 40 GB - CD-Rom Computers

STUDENT COMPUTER ROOMS:

LECTURE ROOM BUILDING		
	Room 1	9 new computer with WXP (approx 2 years) 8 different models of computer
	Room 2	13 out dated Macintosh computers without internet connection. Room awaiting refurbishing.

Note: the only computers under three years old are the 9 in the Students Computer Room in the Lecture room Building.

(4) Room 2 of the Lecture Room Building

(5) University courses are organised in the Statistics Centre not at the Centre itself.

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 staff.

Suitability of books and magazines.

With regards to books, there is always at least one copy of the books recommended by teachers available. Library staff consult teachers every year to up date the recommended resources. However the budget for monographies is insufficient and even goes down some years. It is thus impossible to purchase all the new books requested by students and teachers and other users, not to forget that the Veterinary Faculty Library is a reference point for all vets in Aragon and surrounding communities.

The budget for Periodicals is satisfactory and it is easier to fulfil user requirements where it is possible to consult data bases, some with complete texts.

Opening hours.

Opening hours are satisfactory as the library only closes at weekends and during the holidays.

Provision of reading areas.

Areas become over-crowded at certain times of the year. With the space available at present it is not possible to enlarge the area and space is needed to store resources both for reference in the Library and for lending. Conditions do not satisfy the Rebiun average facilities (University Library Network) for University Library.

Support Staff

More staff would be needed to finish cataloguing Department resources and include them in the Innopac Milenium programme for Library Management. This would also enable work to be done on the introduction of more IT facilities for users.

In addition to those mentioned the library also offers the following services:

User training	Document search
Reading service	Book and reprint ordering service: by completing a form or by e-mail: bibvetez@unizar.es
Photocopying	

IT facilities:

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

Referring to the computer service, as follows:

- Communication

The Veterinary Faculty is connected to the University of Zaragoza communications network (RACI project). This connection enables us to communicate and work with the rest of local networks and central teams of the University of Zaragoza and also to interconnect and use the facilities of the major national and international networks. This service maintains the local Faculty network and the NEW VETERINARY SERVER of the local Appletalk network (VET-ETHER zone) which has a library of programmes and information about the Faculty Computer Service.

- The Virtual campus (Anillo Digital Docente)

The University of Zaragoza has set up a virtual campus project on <http://add.unizar.es> for different types of teaching. The new resources may be added to the VTH in basically the same way as for any conventional web server except that it must be done via and interphase provided by the VTH which simplifies the process.

-Enquiries

An important aspect of this service (due to the special circumstance of the Faculty being situated off the main Campus) is enquiries: questions about applications, equipment, connections, e-mails, manuals, etc.

Intentions are to optimize these enquiries and the real working time of the operator has been divided in two blocks:

1. Outside enquiries: Departments, Secretaries Office, etc. have requested enquiries be made early in the morning once a request has been made via the website of the University for this purpose.
2. Enquiries from the Students Room: from 12:00 to 14:00 h. This timetable is also recommended for enrolments and information about courses, document and magazine lending, etc.

-Hippies Courses

The “HIPPIES” programme is organised throughout the academic year by the Computer Distribution Area of the Statistics Centre, HIPPIES standing for “Herramientas Informáticas Para Profesores y Estudiantes” (Computer Tools for Teachers and Students) organises introductory courses in Macintosh and other specific programmes for other applications.

-Notice board and Suggestions Box

In the Students Room there is a suggestions/comments box for users to send messages to the Users Commission.

In the Information Service the staff rotation amongst auxiliary staff each year is due to their being final year interns. This means performance is not as good as it could be. In addition equipment soon becomes out-dated and would need to be renewed more frequently.

3. SUGGESTIONS

It would be advisable for the Faculty to designate more space for the Library or build a new one. Although this is not easy in the short term, we should begin to study the idea so as to include it in the Multi-annual University Plans.

The addition of an Assistant and a Librarian to the Library Staff would help solve the delay in cataloguing resources and allow more time to be spent on expanding IT facilities.

Another important point would be to include in the University budget for monographies a corrective phase so that the annual allowance could be increased.

Regarding the audiovisual service, the Hospital clinic is equipped with a video system to project live on screen in the classroom from the two operating theatres. There is also a two-way portable audio system for teaching purposes. It would however be interesting to establish agreements with other Veterinary Faculties in the rest of Europe to be able to attend operations in these Centres “virtually”.



CHAPTER 9: ADMISSION AND ENROLMENT

CHAPTER 9 ADMISSION AND ENROLMENT

1. FACTUAL INFORMATION

9.1: STUDENT NUMBERS

Table 9.1.1: Undergraduate student breakdown

a.	Total number of undergraduate students	1,064
b.	Male students	308
c.	Female students	756
d.	Nationals	1,039
e.	Foreign students	25
	- from EU countries	21
	- from non-EU countries	4
f.	1st year students	155
g.	2nd year students	235
h.	3rd year students	148
i.	4th year students	195
j.	5th year students	311
k.	6th year students	
l.	7th, or subsequent year students	
m.	students not in any specific year	20

Table 9.1.2: Postgraduate student breakdown

n.	Total number of postgraduate students	162
o.	Male students	72
p.	Female students	90
q.	Nationals	98
r.	Foreign students	64
	- from EU countries	12
	- from non-EU countries	52
s.	1st year students	55
t.	2nd year students	55
u.	3rd year students	52
v.	4th year students	
w.	5th, or subsequent, year students	

Give the total number of students in the establishment (a+n) 1,226

9.2 Student admission

State the minimum admission requirements.

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

In Spain teaching is structured in five cycles: pre-school (3 to 5 year-old), compulsory primary education (6 to 12 year-old), compulsory secondary education (12 to 16 year-old), Baccalaureate (16 to 18 year-old) and further education (18 onwards). Baccalaureate is divided into 4 subject areas each one leading to a particular type of University studies. For instance a student wishing to enter the Faculty of Veterinary Science should study Health and Natural Sciences. Students apply in advance for a certain number of university courses indicating their preferences (eg. 1st Engineering, 2nd Sciences, 3rd Veterinary Science, etc). The main entry mechanism is a general examining system called “University Entrance Tests” taken at the end of Baccalaureate. The average mark is calculated by adding 60% of the average score from Baccalaureate to 40% of the score achieved in the Entrance Tests.

In 2004-2005 the entry requirement for Veterinary Sciences was a score of 6.240.

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.

The students who study veterinary have previously attended biology and chemistry in the baccalaureate, and many of them have attended mathematical and physical as an optative. Initially the students who enter in veterinary must have an acceptable base in the scientific disciplines.

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

The limitation in the number of students that can access to the university studies each academic year is established by the University Coordination Council, through a previous University proposal where the Center capacity and teaching resources level available are taken in account, in accordance with what is established in the ministerial legislation and in particular, in Real Decree 69/2000.

The concurrence to the available places where the limitation is approved, can be made from any university district of the national territory, that is to say, it does not exist resident place prevalence when choosing a place in any Spanish university. The students selection in this process is made by means of the marks provided by the applicants, adjudging the seats available in rigorous order.

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

The Ministry of Science and Education offers a number of grants for all types of students and universities. The student makes his/her request and the grant is given based on his/her academic results and family economic status. For the year 2004-2005 144 students received grants.

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

No other circumstances are consider

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

The possibility of any change in the number of students admitted anually is not contemplated. The admission forecast is to that the figures stay in the present levels.

Table 9.2.: **Intake of veterinary students**

Year	number applying for admission	number admitted	
		“standard” intake	other entry mode (transfers) ¹
2004-2005	450	155	8
2003-2004	497	166	1
2002-2003	514	189	3
2001-2002	579	172	3
2000-2001	510	167	6
1999-2000 (a)	485	167	3
1998-1999	589	176	0
1997-1998	468	181	7
1996-1997	730	187	2
1995-1996	565	207	5

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

9.3 Student flow

Table 9.3.1: **Student flow**

Of the students whose admission year was N-5 (number a. in Table 9.2) how many are at present (five years later) in the:

b.	1st year	0
c.	2nd year	2
d.	3rd year	2
e.	4th year	12
f.	5th year	83
g.	how many have graduated	56
h.	how many have dropped out or been asked to leave	15
i.	how many are not in any identifiable year	0

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

	Year	Number graduating
j.	2003-2004 N	145
	2002-2003 N-1	154
	2001-2002 N-2	144
	2000-2001 N-3	157
	1999-2000 N-4	133

Table 9.3.3: **Average duration of studies**

In the case of students graduating in year 2003-2004 (figure j of Table 9.3.2), how many students have attended the veterinary training course for 4, 5, 6, 7, 8, 9, 10 years or more?

	Duration of attendance **	number	
k.	4 years	1	0.69%
l.	5 years	67	46.21%
m.	6 years	30	20.69%
n.	7 years	21	14.48%
o.	8 years	6	4.14%
p.	9 years	2	1.38%
q.	10-13 years	7	4.83%
r.	More than 13 years	8	5.52%
Average duration of studies of the students who graduated in year N:		6.58	

** 3 students graduated in 2003-2004 attended their studies in 3 years. (2.07%)

Describe the requirements (in terms of completing subjects and examinations) for progressing to a subsequent year of the course.

1st year students who do not pass a minimum of one subject in the year will not be able to register for the following year.

Students wishing to register for 3rd year must have completed at least 75% of the hours in core, compulsory subjects from first and second year (922.5 hours).

Those wishing to go into fourth year must have completed at least 90% of the core compulsory hours from first and second year (1,107 hours).

Describe the academic circumstances under which the establishment would oblige students to leave the course.

A student would be required to leave the Faculty, according to a resolution of the Government Joint of July 8th 1986, if the student has used up the six exams of any given subject to which each student is entitled. To compute the six exams (re-takes), it only counts the exams that the student has attended to, since missed exams don't count. Attendance to exams is not mandatory.

2. COMMENTS

1. Comment on the standard of the students starting the course.

2. Comment on the ability of the establishment to satisfactorily decide the number of students it can accept.

3. Comment on the factors which determine the number of students admitted.

4. Comment on the adequacy of the facilities and teaching programme to train the existing number of students.

5. Comment on the progress made by students in their studies, and the establishment's ability to ensure that satisfactory progress is maintained.

6. Comment on the percentage of students that will eventually graduate.

1. The level of the students that begin the studies is quite good, although it would be desirable that the level of basic knowledge was higher.

2. Although the Faculty requests a progressive decrease of the number of students that are admitted, the final decision is beyond the Faculty control. Nevertheless, in the last years there has been a decrease of the number of admitted students (numerus clausus), what has allowed to improve the ratio and the quality of teaching, mainly the practices, and the implementation of new educational methodologies as interactive teaching.

3. The most important factors would be those that determine the ratio professor / student, the availability of classrooms and labs... Currently the Faculty feels that all these factors are quite equilibrated with the number of students that we prepare.

4. At this time one of the priorities of our Faculty, as in most of the Spanish universities, is to adapt the educational methodology to the new requirements of the European Space for Higher Education. The changes that will suppose this adaptation are very important and they require from the resizing of the teaching groups to the changes in the mentality of the professors and educational systems.

5. The controls of the teaching quality and the evolution of the students throughout the Degree are perfectly defined; the Commission of Teaching is the one that controls all these aspects.

6. Average figures of students that graduate in the last:

20 years: 85.93%

5 years: 82.98%

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:

1. the number of students admitted;
2. the drop-out percentage;
3. the average duration of studies;
4. other aspects

As for the number of admitted students our status is, in general, satisfactory. The adaptation to the European Space of Higher Education can suppose changes in the composition of the groups but we believe that the Faculty is prepared to cope with them. In the next years, we will possibly have new general guidelines for the Veterinary Degree at national level, but even if they affect to the length of the studies or to the syllabus, we believe that the Center will be able to assume the new challenges with the current available funds and facilities.



CHAPTER 10: ACADEMIC AND SUPPORT STAFF

Chapter 10 ACADEMIC AND SUPPORT STAFF

1. FACTUAL INFORMATION

	Budget posts (FTE)	Non-budgeted posts (FT·)	Total (FTE)
1. Academic staff			
a) teaching staff	166.625		166.625
b) research staff	41		41
c) others (please specify)	8		8
d) total academic staff	215.625		215.625
2. Support staff			
e) responsible for the care and treatment of animals**	22		22
f) responsible for the preparation of practical and clinical teaching	30		30
g) responsible for administration, general services, maintenance, etc	38		38
h) engaged in research work		37.23	37.23
i) others (please specify)	11		11
j) Total support staff	101	37.23	138.23
3. Total staff (d+j)	276.625	37.23	353.855

**As already explained in chapter 6, although the Animal Experiment Support Service is situated at the Centre and the staff employed there participate in maintenance work and animal handling it is coordinated by the Vice-Chancellor's Research Board.

Table 10.2: Allocation of personnel (Teaching Staff) to the various departments

Unit /Department	CU	TU	TEU	Ayte.	Ayte Dr.	Asociado	Emérito	Otros*	Total
Agriculture and Agrarian Economy		9			1	0.75			10.75
Anatomy, Embryology and Genetics	2	13		2	1			7	25
Pathological anatomy, Legal Forensics and Legal Medicine and Toxicology		4						4	8
Biochemistry and Molecular and Cellular Biology	2	4						9	15
Pharmacology and Physiology		9		1				2	12
English and German Philology		2	1						3
Applied Physics		1	1						2
Applied Mathematics		1			1	0.75			2.75
Veterinary Medicine	8	43			4	5.75		6	66.75
Animal Production and Food Science	4	28		1	1	3.75	1	21	59.75
Analytical Chemistry		3			1	1			5
External Training						5.625			5.625
Totals per unit	16	117	2	4	9	17.625	1	49	215.625

CU: Full Professor (State employed, teaching doctors with full teaching and research capacity)

TU: Associated Professor (State employed teaching doctors with full teaching and research capacity)

TEU: Lecturer (State employed teacher with full teaching capacity)

Ayte: Assistant (Teachers on contract whose main objective is to complete their research training)

Ayte. Dr: Assistant (Teachers on contract for teaching and research work)

Asociado: Associate (Well-known specialists on temporary contracts as teachers)

Emérito: Emeritus (Retired stated employed teachers recognised for their distinguished service to the University)

* Post-doctoral researches

Table 10.2.bis: Allocation of personnel (Support Staff) to the various departments.

<i>Unit /Department</i>	<i>Technical/Animal</i>		<i>Admin./General</i>	<i>Total</i>
	<i>Teaching</i>	<i>Research</i>		
Agriculture and Agrarian Economy	1		1	2
Anatomy, embryology and Genetics	2	11.46	1	14.46
Pathological Anatomy, Legal Forensic Medicine and Toxicology	1			1
Biochemistry and Molecular and Cellular Biology	1	1.57	1	3.57
Pharmacology and Physiology	2	0.57		2.57
Veterinary Medicine	9	4.03	2	15.03
Animal Production and Food Sciences	5	7.60	2	14.60
Veterinary Teaching Hospital	6		2	8
Pilot Plant	3			3
SAEA	22			22
Central Secretary's /Administration			11	11
Porter's Lodge			10	10
Reprography			3	3
Library			8	8
Services Computer / Radioisotopes / Audiovisuals / Maintenance			8	8
National Center of Encephalopathies and Regional Laboratory of Encephalopathies		12		12
Total unit/department	52	37.23	49	138.23

Table 10.3: Personnel responsible for undergraduate teaching

A.	Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching	166.625
B.	Number of research staff involved in undergraduate teaching (see explanation to this table above))	
C.	Total number of personnel responsible for undergraduate teaching (A + B)	166.625

Ratios

Ratio: teaching staff / undergraduate students

$$\frac{\text{number of teaching staff}}{\text{number of undergraduate students}} = \frac{166.625^1}{1,064} = \frac{1}{6.38}$$

Ratio: teaching staff / support staff

$$\frac{\text{number of teaching staff}}{\text{number of support staff}} = \frac{166.625}{138.23} = \frac{1}{0.80}$$

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.

Academic staff

The Department is the body that according to their needs ask for new positions, either permanent or non-permanent (contracted) teachers. The final approval and the corresponding funds depend on the University.

The almost imminent amendment of the LOU will regulate in a more precise way the processes of academic staff promotion, starting from the Departments, passing through the University and arriving to the Ministry of Education. In this process, the composition of the Evaluation Commissions, types of exams, etc. are aspects that will be clarified and organized.

In the case of non-permanent teachers it is the University that fixes the criteria in accordance to the regulations of the Autonomic Government.

¹ Only those who impart teaching have been included. Researches have not been taken into account.

Support staff

The number and location of the support staff is negotiated with the University according to the needs of the Faculty, and they are paid directly by the University. There is also permanent and non-permanent (contracted) support staff. Additionally, there are many contracted support staff allocated to research labs which are paid by the research projects (local, national or EU-funded projects).

Indicate whether there are difficulties in recruiting or retaining staff.

Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade.

At the present time the university system and our Faculty's is a very rigid and not very agile system for the recruiting of new staff. The promotion possibilities of a contracted staff to a permanent position are scarce, because they generally depend on budgets. The possibility to carry out new recruitings is also complicated by budgetary issues. Another important aspect is the difficulty that a contracted professor finds to follow the university career, what hinders the consolidation of the new staff and the desired mobility in educational teams, research teams, assisting services, etc.; this difficulty arises again for budgetary reasons.

Indicate whether it is straightforward to employ additional staff from service income (*e.g.* from revenues of clinical or diagnostic work).

The Clinical Veterinary Hospital has the possibility to contract additional staff in charge of its earnings; the recruiting system is regulated by standard procedures of the own Hospital. The Hospital is placed statutorily under the supervision of the Council of Government of the University.

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

The regulatory scheme that governs the private activities of the Faculty's staff is regulated by general guidelines published in BOE (Official Bulletin of Spain), other specific regulations published in the BOA (Official Bulletin of Aragon), in the Statute of the University of Zaragoza and finally, others that the Departments have. Nevertheless, some types of staff, as people that collaborate in research projects are regulated by the project leader, or by the conditions established in their research contracts.

The full-time academic staff cannot work in private practicing outside the Faculty, unless they are included in institutional agreements in the frame of signed agreements among the University of Zaragoza, Faculty of Veterinary and third parts.

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

1. attend scientific meetings;
2. go on a sabbatical leave

Different forms exist of getting assistance for attendance to scientific meetings, whether by national calls published in the BOE, regional calls published in the BOA, or local calls summoned by the University of Zaragoza. Another type of helps can arise from research projects or assistential services.

The regulatory scheme for sabbatical leaves is under the Statute of the University of Zaragoza. Other leaves for shorter periods can be obtained by simply asking the Department and the Faculty and assuring that the teaching corresponding to the leaving professor is perfectly covered by others.

Regarding licenses and permits to the professors of the University, a resolution of the Government Joint of 1991 says that they will be able to enjoy license for studies for a period of 12 months (in a row or in total) whenever they complete the following requirements:

- a) to have the permission of the department
- b) that the group of professors enjoying license simultaneously doesn't surpass 2% of the total
- c) that the satisfaction of the license doesn't constitute impediment so that other professors of the department can exercise the same right.

The remunerations during the period of license will be able to reach, in the cases of stays in foreign Centers, the upper limits regulated in the Royal Decree 898/1985 of Procedures and Policies for Academic Staff.

Regarding sabbatical leaves, qualified applicants are those who want to expand or to improve their knowledge in national or foreign Centers. The license is studied by the Council of the Department in order to make the necessary changes to assure the normal development of the teachings.

2. COMMENTS AND SUGGESTIONS

Comment on the numbers of personnel in the various categories

Academic staff

Academic staff number at this time is quite acceptable, nevertheless, the few opportunities for the promotion and the precariousness of some contracts of Associate professors, makes the educational potential of the staff not fully exploited. It would be desirable that there were better opportunities for promotion and that the precarious system used to contract Associate professors, too utilized in the last years, would be substituted for a more effective system.

Support staff

The number of support staff is not inadequate, but the possibility of promotion of this staff should be improved.

It would be desirable to resolve the status of instability for an important volume of contracted support staff, with a clear planning of their duties and workplaces

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.

The wages for the qualified personnel, either academic or support support, is below that earned by similar levels in the private activity; this makes the work in the University a vocational job in both sectors. It would be desirable a better adjustment of salaries for the university personnel, which in some cases are so precarious that suppose continuing mobility in the workplaces.

Comment on the percentage of veterinarians in the academic staff.

The percent of veterinarians in the academic staff is high. This percentage is higher in second cycle disciplines, being somewhat lower in the departments of basic disciplines. We believe that this status is positive for the Faculty.



CHAPTER 11: CONTINUING EDUCATION

Chapter 11 CONTINUING EDUCATION

1. FACTUAL INFORMATION

Given the difficulty in presenting all the information required in this section the following should be considered as a sample of the activities completed.

11.1: Continuing education courses held at the establishment.

Table 11.1.1: Courses organised by the establishment itself in the most recent year: 2004

Title of course	Number of participants	Total number of hours of the course
New rural life in Latin America	30	80
XVII Symposium on cooperatives and rural development (Associationism in the rural world)	90	40
Cellular Separation and Sub-cellular fractions	17	30
Course in Veterinary Medicines, medicinal fodder	20-25	12
Homeopathy and Therapeutics for vets	49	12
Course in Sheep Pathology	32	14-19 june
Informative conferences	Variable	Last Thursday in the month

Table 11.1.2: Courses organised by the establishment itself in the preceding year: 2003

Title of course	Number of participants	Total number of hours of the course
XVI Symposium on Cooperatives and Rural Development)	90	40
Practical/Theoretical Course in Sheep Rearing for Meat Production	24	30
Horse Podiatry	110	30
Cellular Separation	14	30
Sediment of Veterinary Medicines in Products of Animal Origin	25	8
Homeopathy for vets	74	12
Course in Sheep Pathology	21	16-21 june
AVEPA Congress	400	20
I Congress of the Veterinary Association of Pork Production of Aragon	150	9
IV Conferences on Dog and Cat feeding	40	20
Informative Conferences	Variable	Last Thursday in the month

Other activities related with continuing education:

Conferences in 2003-2004

Conference "Neuroendocrine-immunological Interactions"
Conference "Neuronal networks and neuronal plasticity in the Down's Syndrome: transgenic mice as research tools"
Conference "Studies on cellular line-ups in the pancreas"
Conference "Identifying mother cells in mammal brain, including the human species"
Conference "Development of an antiloxoscelic anti-poison based on recombining immunogenes"
Conference "Isolation of Membrane Microdomaines - Implications in Cellular Physiopathology"
Conference "The healing powers of sea water."
Conference "Exotic plants in our surroundings. Dangers and Prevention."
Conference "Genes, Health and the Future"
Conference "Supplementation strategies to increase growth rate in microbial protein production in grazing cattle in Australia."
Conference "Mammalian sperm function in the female tract"
Conference "Use of carbon monoxide for meat packaging"

Seminars in 2003-2004

Seminar on Neuroscience
Seminar "Sanitary Aspects in Agriculture and Fishing Industries"
Seminar "Technology of Genetic and Agriculture Handling"
Seminar "Processing of Marine Species and Toxicology"
Seminar "Allergic Substances in fish Products"
Seminar "Toxic Algae and Outcrop"
Seminar "Viruses in Seafood and Agriculture. Aspects of Industrial Pollution of the environment"

Table 11.1.3: Courses organised at the establishment by outside bodies in the most recent year: 2004

Title of the course	Number of participants	Total number of hours of the course
Determining factors in the learning of University students and teaching competence of the teacher		4
Veterinary Cytogenesis	8	40
Course in Molecular Genetics: Genetics on the verge of the XXI century	150	25 (3 h genetics)
Inaugural lesson of the 2004-2005 academic year of the Diabetics Association of Zaragoza	75	2
Cycle of conferences in the Aljafería	70	2
Training course for Keepers of Experiment animals. A1 Category	20	30
Pig anaesthetics workshop	120	16
Medicine waste remains	40	4

Course in "Filemaker Pro as a teaching and research resource"	25	20
Course "Advanced Multimedia presentations for teaching and research with Powerpoint" (3 editions)	20*3=60	16
"Anatomopathologic Diagnosis in Pigs" (II AVPA Congress)	30	3
Technical AVPA Meeting "Pork production costs" Monographic Conference	180	4
Conference "Biotechnology in Reproduction"	40	20
II AVPA Congress	170	11
Picture taking in digital format and treatment with Adobe Photoshop	20	20

Indicate the involvement of teaching staff at the establishment involved in continuing education organised by outside organisations.

Course	Activity	Sponsor
Master in Management of Food Production Companies in the Ebro Valley (2003 and 2004)	Module on Operations Management. Module on Strategy and Company Management. “Quality as a competitive strategy in the food production trade”	University of La Rioja, Navarra Public university and Zaragoza University
Course “ Teruel ham D.O: Production, Technology and marketing ” (2003 and 2004)	“Influence of the genetic line in the quality of ham from Teruel D.O.” “Genetic valuation in the farm and in the season”. “Outlines for genetic improvement in pork meat for Teruel ham”	University of Zaragoza
Course “ Lineal rating ”	“Conceptual aspects of the Lineal Rating of morphological characters”	Spanish Federation of Select Cattle Associations (SFSCA)
XI Course in “Urological experimental Laparoscopy”	Speech “Urological anatomy by Laparoscope”	Centre for Minimally Invasive Surgery.
I Course in “Advanced Thorascopic surgery”	Speech “Anatomy of the breathing apparatus in pigs”	Centre for Minimally Invasive Surgery.
“ III Practical course for beginners in osteosynthesis ”		Spanish Society for Traumatology and Veterinary Orthopaedics
“ III Practical course in articular surgery ”		Spanish Society for Traumatology and Veterinary Orthopaedics
“ IV Course in endoscope retrograde colangiopancreatography ”	Speech on “the anatomy of the higher digestive tract. Anatomy of the upper duodenal union. Via biliopancreatic in pigs and dogs and their relation to humans”	Centre for Minimally Invasive Surgery.
“ XVII national course and XIV international endoscope course. Theory/practical course ”	Endoscope anatomy of the higher digestive tract. Endoscope anatomy of the lower digestive tract. Anatomy of breathing tract. Laparoscopic anatomy.”	Centre for Minimally Invasive Surgery and Spanish Digestive Endoscopic Society
“ XII Course in urological experimental Laparoscopies ”		Centre for Minimally Invasive Surgery, Laparoscopic Surgery Unit, Urology Service of the Miguel Servet hospital, Urology Service of the Carlos Haya hospital of Malaga and Urology Service of the Rio Hortega Hospital of Valladolid
“ II Course in Advanced Thorascopic Surgery ”	Anatomy of the respiratory tract in sheep	Centre for Minimally Invasive Surgery of the Faculty of Medicine of the University of Seville
“ I Practical course for beginners in End luminal techniques and interventionist radiology in Veterinary Science ”		Centre for Minimally Invasive Surgery
“ II Practical course for beginners in End luminal techniques and interventionist radiology in Veterinary Science ”		Centre for Minimally Invasive Surgery
“ IV Practical Course for beginners in Osteo synthesis ”		Spanish Society for Traumatology and Veterinary Orthopedics)
“ Study on the impact of industry on the aquatic environment ”		School for Work Medicine
“ Specialized technicians for animal experiments ”		Superior Council for Scientific Research.

“Specialization in animal handling and welfare of experiment animals”		Diputación General de Aragón and European Social Fund
“Veterinary expert reporting”		Official Veterinary College of Teruel
“Ethics in animal experiments”		Diputación General de Aragón -SIA
Course: “Control of the main diseases in sheep for food production”	Conference “Enteritis in lambs. Diagnosis and control”	Cogullada Agricultural School.
Continouus Training Course on “the diagnosis of lesions in pig pathology.”		Elanco Valquímica, S.A.
Continuous Education Course “The present and Future of Veterinary Science in Aragón”	Speech: “New Infectious pathologies in Aragón. The most frequent diagnosis.”	Superior Council for Scientific Research
Master in IDI of Medicines of the University of Navarra	Conference “Veterinary Medicines and most frequent adverse reactions in animal medicine	University of Navarra
Course “Autopsy as a diagnostic method in pig pathology”		Association of pig vets of Aragon & Elanco Valquímica Laboratories, S.A.
Continuous training “Diagnosis of injuries in pig pathology”		Elanco Valquímica Laboratories, S.A.
Course “Animals for meat production – Uses for clinics and food production”	Speech: “Most frequent injuries and clinic visits in calves and meat lambs. Practical aspects and false injuries”	Association of clinic vets for production animals of Salamanca
Master in IDI of Medicines of the University of Navarra	Conferences: “Introduction to veterinary medicines and most common adverse reactions in animal medicine.” “Animal spongiform encephalopathy.”	University of Navarra
Course “Intensive Course in Sheep clinic”	Speech; “Scrapie sheep, clinic, pathology and control. Clinic and injuries of sheep paratuberculosis”	Veterinary Technical Group S.L.
Further training conference on “Diarrhoea in lambs associated to Criptosporidism and Coccidios”		Alpharma Laboratories and Asesoría Industrial Ganadera (ASIGA)
Course “Sensorial analysis of meat and meat products”	“Sensorial analysis of meat. Theoretical and practical aspects”	INIA Tacuarembó - (Uruguay)
International Course “Sensorial analysis of Meat and Meat products”	“Sensorial Analysis of meat. Theoretical and practical aspects”	Federal University of Pelotas (Brasil)
Summer Course in Teruel	“Teruel Ham D.O: Production, Technology and Marketing”	University of Zaragoza
Course “Advances in Food Science and Technology” (2003)		University of Zaragoza
Course “Food processing: technological, quality and nutritional aspects.” (2002)		University of Zaragoza
Course “Food and Health” (2001)		University of Zaragoza
Course “Olive oil: Science, Economy, Health” (2000)		University of Zaragoza

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.

Title of course	number of hours	organiser
Integral rural development	60	G-9 Group
II Virtual Course in Animal Protection and Experiments in Biomedical Sciences Cat B (FELASA)	60	University of Granada
II Virtual Course in Animal Protection and Experiments for Experimenters in Biomedical Science Cat. C (FELASA)	80	Universidad de Granada
Course "Basic Knowledge in Mathematics"		OTRI

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.

The quality of the training programmes which the Centre takes part in as such, or in which teachers do so individually, is considered to be high. Thus a link has always existed between graduate vets and the Faculty who have provided contacts for different Departments depending on the type of problem involved. For this reason the centre has no formal commitment to continual training for various reasons: lack of tradition, such training not being clearly defined as a task for teachers, etc. However this does not discourage trade unions, teachers associations and even independent professionals from turning to the Centre, at particular times, for further training necessary for them to carry out their profession.

3. SUGGESTIONS

Taking into account the fact that advances in knowledge are much faster nowadays it would be reasonable to consider organising advanced training courses or recycling courses especially considering the University's role as a promoter of knowledge, logically along with acknowledgement of work done by teachers.

In our opinion they should be extremely practical courses of short duration compatible with work. They would also help the University to move into sectors in which professional vets work.



CHAPTER 12: POSTGRADUATE EDUCATION

Chapter 12 POST-GRADUATE EDUCATION

1. FACTUAL INFORMATION

12.1: POSTGRADUATE CLINICAL TRAINING (INTERNS AND RESIDENTS)

Table 12.1.1: Postgraduate clinical training courses

Clinical discipline	Duration of training		Number enrolled		Diploma or title anticipated
			Full time	Part time	
Small Animals	1 st year	2 nd year			
Anaesthesia	3 months		4		*
Intensive care	3 months		4		*
Internal medicine	6 months		4		*
Soft tissues surgery		6 months	4		**
Traumatology and orthopaedics		6 months	4		**

(*) Diploma in “Medicine and Small Animal Surgery. Grade I”

(**) Diploma in “Medicine and Small Animal Surgery. Grade II”

These Diplomas are issued by the Department for Veterinary Medicine.

This programme includes graduate vets in a rotating system in which they carry out different clinical activities. (See Chart 12.1.1). One day a week residential students take part in additional activities such as Ethology, Oncology and Exotic animals and two days a week in Dermatology and Ophthalmology. The residential students help with the emergency service (evenings and weekends throughout the year).

In 2005-2006 the programme for residential students working with horses will be introduced. This programme is based on a rotating system in which 10 residential students take part (see Chart 12.1.1 b). The students will be selected from amongst residential students who were residential during their final year.

Two of the ten residential students will be put “in charge” every week to enable them to follow-up full cases. During that week they will also deal with any emergencies which may happen during the night or at the weekend.

Table 12.1.1 bis: **Postgraduate clinical training courses**

Clinical discipline	Duration of training(*)		Number enrolled		Diploma or title anticipated
			Full time	Part time	
Horses	1 st year	2 nd year			
Surgery			10		
Internal Medicine			10		
Anaesthesia			10		
Lameness			10		

(*)A rotation system, as for small animals, will not be introduced. Residential students will deal with the cases which come in enabling them, as far as possible, to carry out a complete case without counting on specific disciplines.

Indicate whether students involved in this training receive a grant or a salary

In both cases residential students in their second residential year receive wages paid by the hospital from the money which comes in.

Indicate any programmes that are certified by a European Speciality College.

No programmes of this kind available.

12. 2: TAUGHT POSTGRADUATE COURSES

Table 12.2.1: **Taught postgraduate courses**

	Duration of training	Number enrolled	
		Full time	Part time
(a) Diploma level (discipline)	260 h.	25	
1. Specialised course in food anthropology: food, health, technology and society.			
2. Online course in Ophthalmology	60 h.	25	
3. Course in Anaesthetics and Intensive Care	30 h.	20	
4. Course in practical taming in laparoscopic surgery	24 h.	6	
5. Specialist diploma in hotel and catering (D.U.E.R.H)	320 h.	20	
6. . Course in practical training in end urological surgery.	16 h.	6	
(b) Masters level (discipline)			
1. Master in top management in food and agriculture companies of the Ebro Valley.	600 h.	25	
2. Master in Veterinary acupuncture	520 h.	25	
3. Master in minimally invasive interventionist techniques guided by biomedical sciences.	570 h.	20	

The Master in “Top Management of Food and Agriculture Companies of the Ebro Valley” is organised by three universities: Zaragoza, Navarra Public University and La Rioja. Each university is responsible for one year of the course. 2/3 of the contents are based on company management and 1/3 on food science and technology. A third of the lectures are held at the Veterinary Faculty.

The specialised course in “Food Anthropology: food, health, technology and society” is organised by the Veterinary Faculty and different universities and Research Centres participate in it, both from Spain and overseas: University of Zaragoza (the organiser), Barcelona, Basque Country, Seville, UNED, Oxford, Paris, Palermo, Tunis, Maxplan Institute, CNRS, EHESS, Centre European des Sciences du Gout, Instituto de Estudios Indigenistas, Institut Catala d’Estudis Mediterranis, etc.

The course contents contain subjects related to the areas of bio medics related to food, food technology, anthropology and related Social Sciences.

The Master in Acupuncture offers training in this subject to vets and intends to centralize the most important nucleus in Spain, and one of the most important in the world in the study of veterinary acupuncture, in Zaragoza, the length of the Master is two academic years.

For this course 125 hours are validated for students who have done the degree course in the same subject, if it is also organised by the Pathology Department.

The Master “Minimally Invasive Interventionist techniques guide on screen for biomedical science” will be offered for the first time in the 2005-2006 academic year. Teaching is organised in 4 modules. The course has a high practical content for which reason the UTMI is used (Unidad de Técnicas Minimamente Invasivas) (Minimally Invasive Techniques Unit) of Veterinary Teaching Hospital with operating theatres equipped with digital technology, laparoscopic, endoscope and ultrasound scanning units, non invasive and invasive laboratories microscopes, experimental models and training resources. The Masters Course take two academic years and includes a series of Training Seminars which, being of general interest, are also offered to other students and are equal to two credits.

The Ophthalmology Course is an on-line course offered by the University of Zaragoza taken by graduates in Veterinary Science from this and other Faculties.

The Anaesthetics and Intensive Care course is also offered as a doctorate course for those graduates who are on doctorate programmes.

The course for specialisation in hotel and catering is organised by the Animal Production and Food Science Department. The objective of the course is to prepare professional experts in hotel and catering. It includes subjects related to food hygiene and safety of foods and their effects, in addition to subjects related to the management of catering establishments. A series of external credits for training are included. Although it is the Zaragoza Veterinary Faculty which is responsible for the organisation of this course, it is mainly taught at the headquarters the university has in Teruel, with some classes at the Pilot Plant for Food Science and Technology..

The courses in practical training in laparoscopic and end urological surgery are organised jointly by teachers of the Veterinary Faculty and the human Teaching Hospital “Lozano Blesa”. The

courses have a high practical content and are taught at the Veterinary Faculty, in the Minimum Invasion Technical Unit of the Veterinary Teaching Hospital. They are for graduates in medicine, interested in these techniques.

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

The graduates involved do not normally receive a grant or a salary from public bodies. All the Diplomas and Masters courses referred to previously have a high practical content, as explained in the description of each of them.

12.3: POSTGRADUATE RESEARCH PROGRAMMES.

1. Experimental work (TESINA) - DISSERTATIONS

Once a student graduates they may carry out research work for 9 months supervised by a teacher from the Faculty. The work is directed by a Doctor and must be presented by a permanent Professor of the Faculty. The results of this project must be presented in a Document in accordance with current regulations for doctoral theses and must later be presented at a public hearing.

Department	Dissertations read
Veterinary Medicine	3
Animal Production and Food Science	4
Anatomy, Embryology and Animal Genetics	1
Biochemistry and molecular and Cellular Biology	1
Pharmacology and Physiology	1

At the end of this time, students decide whether to continue or not with their Doctorate studies.

2. PhD education program

The seven PhD programmes of the Faculty are organised and supervised by the five Departments of the Faculty. These studies are organised as follows:

- *Diploma in Advanced Studies (Masters level)*
 - First year: Various subjects from the PhD programme (200h)
 - Second year: Research project (120h) under the supervision of one of the Department professors.

To obtain the Diploma students must present their work at a public hearing.

- *PhD title*

Students will do a research project under the supervision of one of the Department professors.

 - Two years for full time students who have the Diploma in Advanced Studies.

Tabla 12.3.2.a. Masters level (Diploma in advanced studies)

PhD Program (Department of Veterinary Faculty)	Duration of training (years)	Number of enrolled students to the courses	Number of enrolled students to the research Project	Number of the people getting the DAS (*)
(*)Program 1. “Genetics and Development” (Anatomy, Embryology and Genetics)	2	9	3	3 (0)
(*)Program 2. “Biochemistry and molecular and cellular biology” (Biochemistry and molecular and cellular biology)	2	22	22	22 (2)
Program 3. “Animal pathology: animal health” Program 4. “Animal pathology: animal reproduction” (Veterinary Medicine)	2	31	20	17 (16)
Program 5. “ Food Science” Program 6. “ Animal Production” (Animal Production and Food Science)	2	17	10	10 (5)
Program 7. Advances in Agricultural Sciences and the environment”	2	16	7	7 (2)

(*) In brackets is the number of graduates in veterinary science.

Table 12.3.2.b. PhD level

PhD Program ¹ (Department of Veterinary Faculty)	Duration of training	Number of enrolled students (*)
“Genetics and Development” (Anatomy, Embryology and Genetics)	4 years	4 (1)
Program 2. “Biochemistry and molecular and cellular biology” (Biochemistry and molecular and cellular biology)	4 years	11 (1)
Program 3. “Animal pathology: animal health” Program 4. “Animal pathology: animal reproduction” (Veterinary Medicine)	4 years	13 (13)
Program 5. “ Food Science” Program 6. “ Animal Production” (Animal Production and Food Science)	4 years	8 (5)
Program 7. “Advances in Agricultural Sciences and the environment” (Agrarian agriculture and economics)	4 years	1 (0)

(*)In brackets is the number of graduates in veterinary science

The doctorate Programme “Food Science” was distinguished with the “Mention” of quality ANECA in the 2004-2005 academic year.

To follow we detail both the research subjects and projects included in the different PhD Programmes taught by the Departments of the Veterinary Faculty.

1. Subjects which belong to the postgraduate programmes mentioned previously and are taught by teachers from veterinary science²:

Genetics and Developing Programme	Credits
Introduction to genetic therapy. Social and ethical implications	4
Cellular and molecular bases of development	3
Transgenic animals: Production and use	3
Biotechnical bases of gene manipulation	6
Biosecurity	6
Synthesis of recombinant protein and production of antibodies	3
Basis of the PCR technique: applications in production and health and their ethical implications	6
Simulation of morphological models by computer	5
Practical courses about the hip: anatomical, biomechanical and radiological aspects,	6

¹ For 2005-2006, the programmes planned are:
 Programme “Animal pathology: animal health”
 Programme “Animal pathology: reproduction, animal medicine and surgery”
 Programme “Food quality security and technology”
 Programme “Animal Production”
 Programme “Advances in Agricultural and Environmental Sciences”

² Courses for 2005-2006, are available for viewing on the website: <http://ebro3.unizar.es:8080/ciclo3/>

clinical and evolutionary	
Advanced techniques for morphological models on the computer (non attendance Course by mail)	4
Biochemistry and molecular and cellular biology programme	
Techniques of Molecular Biology I	3
Genetic Analysis	5
Molecular Pathology	6
Theoretical practical course in cellular separation. Cellular viability study methods	3
Animal pathology: animal health programme	
Parasitical zoonoses	4
Ictiopathology	4
Veterinary medical entomology	3
Environmental pathology	6
Sheep and goat pathology	6
Wild fauna pathology	3
Neoplasias of the breathing tract in pets	3
Basic ophthalmology for vets	3
Contagious Spongiform Encephalopathies	3
Epidemiology and preventive medicine in pigs and other domestic species	6
Homeopathy and homeopathic therapeutics in Veterinary Sciences	4
Ticks and transmissible diseases	3
Comparative and immunopathological immunology in Veterinary Medicine	3
The microbiological laboratory as support in veterinary health	4
Microbiological analytical techniques for the detection of environmental pathogens	3
Intensive care and anaesthetics in small animals. Introduction	3
Intensive care and anaesthetics in small animals. Techniques used	3
Animal pathology: animal reproduction program	
Pig Reproduction	3
Reproduction Biotechnology	3
Behaviour and factors involved in reproduction	3
Events related to gestation	3
Reproduction in different animal species	6
Basic mechanisms in animal reproduction	6
Food science program	
Basic parameters for the quality of meat	3
New tools applicable to quality control and sanitary guarantee - ARCPC	3
Food regulations	3
Immunochemical techniques applied to quality control in food	3
Dietary and nutritional requirements as a basis for food quality	3
Quality control of fruit and vegetable products	3
Microorganism isolation and identification systems in food hygiene and inspection	3
Study of different antimicrobials as apposed to microorganisms of interest in food hygiene	3
New food hygiene and sterilization methods	4
The colour of foods	4
Animal production program	
Sheep reproduction	4
Basic parameters in the quality of meat	3

Animal feeding in extensive systems	3
Animal productionl (extensive systems)	3
Animal welfare and animal behaviour	3
Genetic improvement in cattle rearing	3
Comparative nutrition: Digestion and absorption of nutrient	4
Bovines reproduction	3
Statistical techniques for researches: regression and experimental design	3
Analysis of multivariant data with SPSS	3
Advances in agricultural and environmental science	
Biodiversity, Genetics and Plant Preservation	3
Applications of “in vitro” outcrop in plant improvement	3
Physiological, biochemical and molecular techniques	3
Systems for the production and optimization of water resources in alternative agriculture	6
Analytical techniques for the valuation of ground and water quality	3
Prevention and control of ground deterioration by agricultural activities	3
New ground taxonomy (FAO)	3
Biodeversity of agropastoral ecosystems.	3
Classification, cartography and evaluation of grazing and forage resources	3
The Ecosystem of the olive growing in Aragón and its contribution to development.	3
Hos/parasites: environment intereactions	4
Post-harvest fruit handling: machinery and product quality	3
Systematic theory: Applications in R+D in agricultural production and economy.	3
Present day applications in optimization	3
New strategies for rural space and policies for rural development.	4
State intervention agricultural markets.	3
New perspectives in good and agricultural marketing.	3

2. *Experimental research projects belonging to the postgraduate programmes mentioned previously which are supervised by a teacher from the Faculty of Veterinary Science³:*

Genetics and Developing Program	Credits
Molecular biology of the Alzheimer diseases	12
Finding and identifying genes related to food quality and security	12
The biotechnology of DNA: study of hereditary and non-hereditary diseases	12

Biochemistry and molecular and cellular biology program	Credits
The biology of reproduction	12
The biology of reproductive plants	12
Mitochondrial genetic system: working implications	6
Mitochondrial genetic system: pathological implications	6
Spermatozoon biology	12
The effects of nutrients and genes on the arteriosclerotic lesion	6
The effects of nutrients and genes on apolipoprotein regulation	6

³ For the 2005-2006, academic year, research lines can be located on the website: <http://ebro3.unizar.es:8080/ciclo3/>

Animal pathology	Credits
Animal Health and Veterinary Public Health	12
The development of molecular techniques for the diagnosis of diseases in fish	12
Pathology and health of horses and animals for meat	12
The study of hematologic dipterans at a point in Besnoitia Besnoiti	12
The Pathology and Health of wild animals	12
Aspects related to animal production	12
Anaesthetics and veterinary surgery	12
Parasitological study in ostriches in extensive regimes	12
Aspects related to animal reproduction	12
Variation of a PCR technique in the diagnosis of bovine besnoitiasis	12
Validation of an Elisa test with the Lack protein for the diagnosis of canine visceral leishmaniosis	12
Animal Medicine	12
Ecographical changes in the pancreas in cases of acute abdomen	12
Production the pig delivery room and reproduction	12
Behaviour problems in dogs	12
The situation of the PRRs virus in the countryside. Development and control. Relations with Hyoneumonia Mycoplasm.	12
Animal production	Credits
Digestive microbiology	12
Control of zootechnical results in rabbits	12
The mechanisms of inactivation and microbial resistance to food preserving processes	12
Milk proteins with biological activity	12
Immunoglobulin levels and their correlation to the levels of other proteins in cows milk	12
Animal behaviour and welfare	12
Quantitative genetics and genetic improvement	12
Study of the genetic relation between fertility and ease of birth giving	12
Emerging technology in food processing	12
Bovine reproduction	12
Sheep reproduction	12
Meat quality	12
Advances in agricultural and environmental science	
Study of internationalization process of food and agriculture companies	12
The exploitation and conservation of mediterranean pasture and forestland	12
Ground-plant relations in agriculture and the environment	6
Certification and quality in food and agriculture products	6
Genetic rules applied to the conservation of endemic and endangered plants	12
Host x pathogen interaction	12
Study or crossed protection in the melon against Fusarium Oxisporum f sp melonis using non pathogenic strains	12
Rural development programmes	6
The economy of agricultural production	6
Analysis of cattle rearing systems in mountain areas	12
The evolution and analysis of cattle rearing systems in the Broto Valley	12
The study of a livestock route (Cabañera Ansotana) as an ecological corredor. Floristic aspects and plant biodiversity	12

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.

Students registered on Postgraduate Programmes do not usually get a salary. They usually receive a fellowship from different sources, public institutions or research projects.

2. COMMENTS

Comment on the number of postgraduate diplomas/titles awarded annually.

Comment on the percentage of veterinarians participating in postgraduate research training programmes.

There are a large number of Overseas Graduates on Postgraduate Programmes.

In the 2003-2004 academic year a total of 59 Diplomas were awarded in further studies in the different Departments of the Veterinary Faculty of which 25 were awarded to Graduates in Veterinary Science.

In the 2003-2004 academic year a total of 37 Doctoral Theses were defended in the different Departments of the Faculty of Veterinary Science of which 18 were defended by Graduates in Veterinary Science.

3. SUGGESTIONS

To improve the organization, coherence of the programs and interaction between teachers involved in different postgraduate programs.

To improve recognition of the academic efforts of teachers participating in postgraduate education.

A better coordination between Veterinary Associations, managers and the Faculty of Veterinary in the planning of the subjects that are going to be taught in the courses.

To look for a greater collaboration between Faculties of Veterinary, at national and transnational level in terms of programming postgraduate courses.



CHAPTER 13: RESEARCH

Chapter 13 RESEARCH

1. FACTUAL INFORMATION

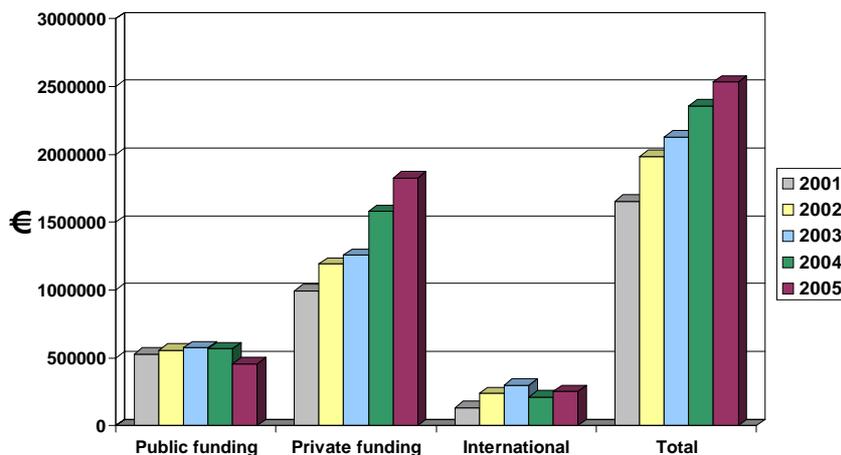
Indicate the involvement of undergraduate students in research referring to the time spent, the percentage of students involved and results achieved.

Undergraduate students have the opportunity to help in research projects of the Departments by means of special fellowships called “Becas de colaboración” sponsored by the Spanish Ministry of Education. Applicants for these fellowships are selected on the basis of their curriculum vitae, taking into account how interested they are in the research project. Students participate in research projects of the different departments of the Veterinary Faculty of Zaragoza University. Figure 1 shows the number of these fellowships granted over the last 5 years.

2001	2002	2003	2004	2005
12	14	14	16	18

Students may participate in research projects coordinated by the Departments by means of what is called “voluntary work”. Most departments offer this possibility to students who voluntarily express their wish to become involved in research and the degree of participation is determined by the researcher in charge of the project and the individual student. Very often this is the first step of the student’s research career. Many students apply for PhD fellowships after graduation. (see table “public and private funding of the departments”).

Research Funding at the Veterinary Faculty



The new degree in Veterinary Science introduced in the 2002-2003 academic year, enables students to carry out research at the Departments which count as optional credits accounting for 35.5 percent of the total degree course. Students may apply for all or part of these optional credits by submitting the work proposed to the Academic Commission of the Faculty. Students may also apply for a SOCRATES-ERASMUS fellowship at a European University either to study part of their course, to complete training or to collaborate in research projects.

2. COMMENTS

Comment on the opportunities for students to participate in active research work.

The research activities of the Departments of the Veterinary Faculty are so diverse and intense that all students have the opportunity to take an active part in research work (see Annex 8 with relevant publications of the departments/units in the past 5 years). The subjects cover basic sciences and more specialised areas: clinical, animal production and food hygiene.

3. SUGGESTIONS

Will students be given more opportunity to participate in research activities?

If so, how will this be done?

As previously stated, undergraduated students have very interesting options available to them for research activities: free choice credits, voluntary work, special fellowships “becas de colaboración”. This is the first step in a research programme which may be furthered by PhD fellowships and by participation in a postgraduate programme. The subjects offered by the different departments and other external institutions, both public and private, cover all the areas related to veterinary science.

Another possibility which may be considered in the near future is to include a research programme in the curriculum including several aspects related to research, from strategies and tools for finding scientific information and basic methodologies for research to critical discussion about research publications. These subjects would be recognised either as elective or free choice credits.