**INDEX**

# INTRODUCTION

The first full evaluation visit to the Veterinary Faculty of the Universitat Autònoma de Barcelona (UAB) took place in 1992. In April 2000, a follow-up visit was carried out by Dr. M. Hesselholt to check the improvements made since 1992. The report of that follow-up indicated that the major deficiencies observed in 1992 have been overcome. However, suggestions were made to increase the student admission number and to increase self-learning and the number of practical hours particularly in large animals.

During the last four years, changes have occurred. Regarding organisation and internal structure, the major change has been the creation of new departments. Thus, until 2000, there was one major Department, called "Department of Veterinary Medicine and Animal Science", that in 2001 was split in three departments, covering the major veterinary areas: "Department of Animal Medicine and Surgery", "Department of Animal Health and Anatomy" and "Department of Animal and Food Sciences". Basic science departments remained as Veterinary Units belonging to Inter-Faculty Departments.

Other changes were due to the new "*Ley Orgánica de Universidades*" (LOU) that regulates higher education in Spain. This law that was passed in 2001 modified the structure of the different bodies of the university and defined new types of academic positions. Also, the Catalan parliament, using its political competences, passed the "*Llei d'Universitats de Catalunya*" (LUC) that develops the LOU in Catalonia. These changes forced the university to renew its regulations. Therefore, the UAB approved a new Statute in 2002. As a consequence, the election processes for the main officials changed. Now the University Rector is elected by universal suffrage instead of being elected by the General University Assembly ("*Claustre General*"). Nevertheless, this higher level of democratisation is only apparent since each vote has a different weight. Votes of academic staff holding a PhD are weighed 51%, votes of students are weighed at 30%, votes of non-PhD teachers at 9% and votes of support and administrative staff are weighed at 10%.

The Veterinary Faculty and the Departments also had to change all their regulations which were definitely approved during the first semester of 2004. In the Veterinary Faculty, these changes have mostly affected the process to elect the Dean, and also suppressed the Faculty Assembly ("*Claustre de Facultat*"). A more detailed explanation of these items is given in Chapter 2. Other important change introduced by LOU and

LUC is that they allow hiring of a higher proportion of non-civil servant academic staff in different categories (up to 49% of the teaching staff).

In spite of all these changes, there have been no new regulations related to teaching or to the development of curricula and thus, the Spanish decree issued on September 1991 still regulates the different aspects of the veterinary programme. Nevertheless, the government has already prepared several decree drafts aimed to adjust the Spanish structure of higher education to the Bologna Declaration. Also, the Veterinary Faculty participates in a test project, funded by the Catalan government, to adapt several degrees to the European Space of Higher Education (http://www.uab.es/bolonya).

Regarding new buildings or major equipments, most significant advances were done during these years:

- Enlargement of the Veterinary Library.
- Enlargement of farm facilities, including a new examination room and an experimental surgery room.
- Adaptation of classrooms to a lower number of students per group.
- Remodelling of the dissection room for practical lectures of Anatomy.
- Building of a fourth computer room
- Installation of computers and digital projection equipment in all classrooms.
- Installation of an air conditioning system in the library, offices and bar-restaurant.
- Refurbishment of the cafeteria/restaurant and kitchens.

Projects to create new buildings or to remodel existing ones are already approved and construction of them will start during the next months:

- A new Necropsy Room.
- Enlargement of the Veterinary Teaching Hospital (Small Animals and Equine) up to 4400 $m^2$.
- New kennels.

An enlargement of the Food Processing Plant is also planned, although there is no a definitive date for the construction to start.

Two more facilities have been built, the Research Centre for Animal Health (CReSA), which building is almost finished, and the Rabbit Production and Research Unit, which

building has been already started. Both are joint ventures between the University and the Catalan Government through IRTA ("*Institut de Recerca I Tecnologies Agroalimentàries*"). Though these centres do not belong to the Faculty, many teachers participate in their activities and it is expected that this will have a very positive impact on the Faculty. More details on all these buildings and equipments are given in Chapter 6.

A major change affecting the study program has been the organization of the courses in semesters. This was implemented in 1993. Also, significant efforts have been done to boost new teaching methodologies such as self-learning or problem-solving oriented learning. We have also tried to optimize the use of resources for teaching. As a consequence we created "teaching modules", namely, a system of intensive practice or rotations, affecting mostly the clinical areas including large animals. In addition, to further impulse autonomous work, we have created a virtual platform called "*Veterinària Virtual*" that acts as an Internet library where students can found teaching materials, course notes, videos, etc.
All these changes produced a considerable increase in teaching quality. Special emphasis has been done also to preserve animal welfare and to transmit to the students the notion of respect and protection towards the animals.

Also, in these past 12 years the decrease in birth rates has had its impact in the university. However, for the Veterinary faculty while in 1992 the number of new students was closer to 200 per year in 2004-2005 the number of newly enrolled students has been 142 in spite of a fairly constant number of applicants. This reduction has been achieved through an intense negotiation with the Department of Universities of the Catalan Government (DURSI) and thanks to the active help of the Rectorate of the UAB. Such a progressive decrease has facilitated the introduction of more active learning technologies and helped to organise clinical training in small groups (4-6 students).

The major problems detected during these years are detailed in Chapter 1 (Objectives). In summary, they are the following:

- Difficulties for changing the curriculum.
- Student profile: highly motivated for small animal medicine but a majority lacks interest on other areas of the profession.
- Lack of student and teachers' mobility.
- Budget constrains, particularly affecting equipment and hiring of new staff.

- Insufficient number of continuous education courses.
- Difficulties to attain a satisfactory relationship and communication with the society.

## CHAPTER 1- OBJECTIVES

# Chapter 1 - OBJECTIVES

## 1. FACTUAL INFORMATION

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

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

### 1.1. General objectives of the Universitat Autònoma de Barcelona

The UAB is a public institution with its own jurisdiction that, in accordance with the Spanish Constitution and the applicable legislation, possesses an autonomous competency to give the public service of higher education by means of teaching, research and studying.

Some of the main objectives of the UAB are defined in the article 4 of the recently approved Statutes of the university (October 2003):

a) To exercise teaching in higher education, both in knowledge and culture, and in the specialized formation for professional practice, with a constant spirit for the search of quality.

b) To participate in the creation of scientific, technical and professional knowledge through research and to transmit this knowledge to the society.

c) To reach an international dimension of teaching and research, and particularly, within the European Space for Higher Education

d) To encourage, in accordance with international standard criteria, aims and methodologies, the quality assessment of teaching, research and management.

e) To participate in the improvement and development of the educative system.

f) To protect, encourage and promote intellectual and artistic activities in all branches of culture and knowledge as well as to promote critical thinking and the culture of freedom and pluralism that is the core of a democratic society.

**1.2. General objectives of the Veterinary Faculty:**

Statement of the Faculty: To facilitate the integral development of students is important to provide a high quality teaching and to generate a learning environment allowing the students to achieve their potential. Nowadays, to autonomously seek out information, to combine basic science with applied knowledge in animal and clinical sciences as well as in food hygiene and to solve complex problems are crucial abilities and these skills will be even more important in the next future.

Within that frame, the outcomes expected to be reached after the completion of the degree are:

- A sufficient knowledge of the basic subjects that are the foundations of veterinary sciences.
- An adequate general knowledge and technical expertise in veterinary sciences.
- The development of problem-solving skills.
- The ability to use the acquired knowledge in accordance with the principles of scientific research.
- The development of scientific curiosity.
- To be aware of the need of lifelong learning.
- The development of skills in written and oral communication.
- The development of an ethical compromise with the veterinary profession.

**1.3. Specific objectives of the Veterinary Faculty:**

The main goals of our Faculty are to provide a high quality veterinary degree programme as well as to offer further professional and scientific post-graduate education. Training must cover the broad requirements for veterinary graduates, and comply with the EU Directives. The qualified veterinarian is the one capable of working

as an independent expert in various veterinary posts. Also, the Faculty has to serve the veterinary profession and the community as a whole.

According to the European and Spanish requirements for veterinary training, the overall objective of a Veterinary Faculty is to provide to the graduates the knowledge and professional capacity to warrant animal and human health by means of:

- The prevention, diagnosis and treatment, surgical or medical, of animal diseases affecting the individual or a collective.
- The knowledge of the procedures applicable when suspecting or diagnosing a notifiable or zoonotic disease.
- The promotion and safeguard of animal welfare, animal husbandry, reproduction and feeding, as well as the improvement of animal production.
- To contribute to the economically feasible production of healthy and safe food products of animal origin, with the lowest environmental impact and safeguarding animal welfare.
- To secure human health by means of the sanitary inspection, certification and quality control of all food production chain.
- To develop the legislative and administrative principles related to the veterinary profession and public health.

These objectives are in accordance with the legislation applicable to basic veterinary training in the European Union countries (Directives 78/1026 and 78/1027/EEC) that states the minimum compulsory requirements for all EU Member States. Also comply with the Spanish law of health professions (44/2003; B.O.E. 22 nov. 2003) and the FVE document on veterinary training requirements (FVE/00/011).

In addition, the Veterinary Faculty is also a research centre, provides postgraduate and specialist training and imparts continuing education in the veterinary area. By fulfilling these objectives, our faculty aims to be a centre of recognised quality that attracts good students and staff, and that establishes teaching and research relationships with high-level faculties of Spain and abroad.

## 2. COMMENTS

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

### 2.1. System for assessing the achievement of the objectives

The achievement of the general objectives is assessed by several systems. The Faculty has a "Commission for Teaching Affairs" (CTA), appointed by the Faculty Council. This CTA is composed by three elected students, three elected teachers, one member of the support staff and two members of the dean's team (*ex officio*). The CTA meets periodically, at least once every trimester, to analyse and evaluate problems related with the curriculum, teaching methodologies, achievement of practical work activities and any other questions related with teaching/learning matters.

The UAB also has a "Commission for Academic Affairs" which analyses, on a global level, the degree of achievement of the objectives of the UAB and, at a more particular level, the achievement of each faculty. If necessary, this commission dictates corrective measures. Furthermore the "University Commission for Control of Teachers" also evaluates the teaching quality and may order corrective measures or suggest that productivity bonus may be given.

In addition, every three years the faculty has to sign an agreement (*Acord Intern de Planificació*) with the Rector office. In this agreement, the Faculty compromises itself to achieve a series of objectives to improve academic and development standards. If goals are accomplished the Rector warrants extra funds. No additional funds are received if the Faculty fails to accomplish more than 10% of the objectives.

### 2.2. Main strengths and weaknesses of the establishment

STRENGTHS

a) High standard of students: According to the Spanish recruitment system, students enrolling at the Veterinary Faculty of the UAB need to reach a high school *("bachillerato")* academic performance of at least 7 in a scale 0-10.

b) Staff commitment: The Faculty has a high standard academic team, most of them holding national or international PhD degrees. The academic staff is quite active in

research, experienced and compromised on teaching affairs. The support staff (administrator, secretaries, laboratory and hospital staff, animal caretakers, etc.) also have the background, experience and skills necessary to carry out the assigned tasks with good performance.

c) Organization: The Faculty has a strong degree of organization. Any academic activity is planned well in advance (type, time and place of every theoretical, practical or clinical activity) to allow the students to organise their activities for a whole semester before it start. All academic activities are also controlled and assessed. For example, teachers have to sign in an appropriate form each day that they give a lecture and, at the end of each semester, signatures are compared with the planning done before the beginning of the semester. Unjustified changes may be subjected to admonition by the CTA or the vice-dean. However, the degree of agreement between the accomplishment and the planning usually exceeds 90%. At the end of each semester a meeting between teachers and representatives of students takes place to discuss the development of the course. Reports of these meetings are sent to the Vice-Rector and to the CTA.

d) University structure: The structure of the UAB campus allows a high degree of collaboration with other faculties and their departments, and makes easy the use of most general services (chemical analysis, electronic microscopy, computing and multimedia, sports, etc.). Since 1994 the University has an "Institutional Animal Care and Use Committee (IACUC)" that evaluates and supervises all research or academic projects in which animals are to be used.

e) Research achievement: Most of the full-time academic staff is involved in national and/or international competitive research programmes and projects in the different fields of veterinary, animal and food science. The Faculty has several doctorate programs accredited with the "Excellence" award by the Spanish Agency for the Evaluation of University Quality (ANECA)[a]. Our teachers regularly collaborate with other national and international universities, research centres or private and public companies in research and development activities. Furthermore, the Faculty has 13 specialised services (S3) out of 35 in the whole UAB. These services are mainly aimed to collaborate with public and private companies in the areas belonging to veterinary sciences.

[a] Document available at http://www.aneca.es/docs_trabajo/docs/pdc_relacionfinal_nov03.pdf

f) Commitment to teaching innovation and quality: During the last years, the Veterinary Faculty has participated in many university programs at national and international levels such as TEEP (Trans-European Evaluation Project, EU). As a prove of the teaching quality, the Faculty has been recently awarded the "*Jaume Vicens Vives*" prize of the Catalan Government for excellence in teaching in higher education.

g) Equipment: Teaching facilities including classrooms, the library and computer rooms are equipped to meet all basic needs. Equipments in laboratories, the hospital, farms, or the food processing plant are enough for the current requirements and are well managed with an efficient criterion but, being realistic, should be improved in the future. The Animal Health Research Centre of Catalonia (CReSA), a recently created institution that is a joint venture between the UAB and the Catalan Government, has its building next to the Faculty, and most of its researchers belong to the Faculty. It is expected that CReSA will have a positive impact in both, teaching and research on animal health.

h) Location: The Faculty is only 25 km away from Barcelona centre and 35 Km to the International Barcelona Airport. The area where the Faculty is located attracts many people because of the high living standard. Also, many national and international companies have their headquarters in this area (Vallès Occidental).

WEAKNESSES

a) Changing curricula: As it was remarked by the TEEP 2002 commission[a], legal constrains make difficult to change the curriculum in matters affecting the distribution of credits and courses and there is a very poor institutional presence of external bodies (labour market, professional associations, society…) in the curriculum design.

b) Student recruitment: The current recruitment system is quite fair, but produces undesirable effects in the composition of the student population of the Veterinary Faculty. Thus, most enrolled student are of urban origin (90%) and highly vocational on small and exotic animals medicine. This makes difficult to reach a balance between the different veterinary professional profiles. Also, there is a remarkable unbalance

[a] http://www.enqa.net/pubs.lasso

between male (20%) and female students (80%). The low wage scholarships for postgraduate research posts difficult recruiting of veterinary graduates for research and postgraduate programmes.

c) Exchanges of students and teachers: We have 21 agreements for academic exchange with other European Veterinary Faculties, but on average, the last academic years we received about 40 students/year from abroad while our outgoing students are less than 20. This is a problem that has to be solved in the next future. One of the reasons for such an unbalance is the low scholarship given to our students to travel abroad. Teaching mobility of academic staff to other faculties is even lower. This reflects in part the scarcity of funds that the university gives for these actions (1,000 € last year for the Veterinary Faculty).

d) Buildings and facilities: The necropsy room and the hospital are inadequate, in terms of available space, for the current level of activity (about 700 necropsies/year and 13,000 cases/year in the Hospital). This problem is about to be solved because a new necropsy building is under construction and an enlargement of the veterinary teaching hospital has been recently approved. In addition, our kennels need to be enlarged to allow a greater number of dogs. Shortage of space in offices and laboratories is becoming a problem because of the increase of research and support staff. Some teaching dependences are poorly versatile and comfort conditions should be improved.

e) Continuous education: The Faculty has improved his offer during the last years; however, the number of courses and continuous education activities need to be promoted to reach optimal levels.

f) Budget constrains: Funding shortages for teaching activities, buying new equipment and for hiring new staff are leading to the need for external funding. Also, these shortages difficult the implementation of more innovative actions in teaching.

g) Relationship and communication with society: Relationship with the veterinary profession and the society are not articulated well enough. It is necessary to create permanent ways of communication beyond personal relationships. The Faculty, most of the departments and some services have their own web site but not all are well know. Translation to English of these websites is imperative.

## 3. SUGGESTIONS

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

To address some of the problems mentioned above, we suggest:

a) To use the new possibilities offered by the European Space for Higher Education to develop new teaching methodologies and programs. The present political situation also favours more flexible laws concerning educational structures. These new laws will probably allow more agile changes in the curriculum to better fit society's needs.

b) To improve the information given to high school students about the fields of work and job opportunities for veterinarians will help to modify the composition of the enrolling population of students. Also, more actions must be done with enrolled students to inform them of the real scope of the veterinary profession and the fields in which graduates can develop a career. These actions will help to balance the proportion of students interested in small and exotic animals medicine with those interested in food, livestock or other areas.

c) To further facilitate teacher and student exchanges. Pressure should put on University authorities to increase funding of these mobility actions.

d) Building facilities: Besides the enlargement of the VTH and the new necropsy building, a new kennel with a larger and better housing is under study.

e) More active collaboration with the Faculty departments and the professional sector will lead to the identification of areas in which continuing education for postgraduates is needed.

f) Budget constrains are difficult to overcome. However, to increase the relationship with private companies and non-profit organisations may contribute to obtain more money for particular purposes that can benefit the whole community.

g) It is imperative to optimise the relationships with other segments of the society, facilitating the exchange of opinions between academics and professionals.

This may be done through the creation of a permanent Commission with representatives of professional colleges, industries, etc.

## CHAPTER 2- ORGANISATION

# Chapter 2 - ORGANISATION

## 1. FACTUAL INFORMATION

**Details of the establishment**

**Name of the establishment**: *Facultat de Veterinària, Universitat Autònoma de Barcelona (UAB)*

**Address**: *Campus Universitari, Bellaterra (Cerdanyola del Vallès), 08193 Barcelona*

**Telephone**: *+34 93 581 11 99*

**Fax**: *+34 93 581 20 06* **Website**: *http://quiro.uab.es*

**e-mail address**: *dg.veterinaria@uab.es*

**Title and name of head of the establishment**: *Dr. Josep Gasa Gasó*

**Is the establishment within a university?** *Yes*

**Address of the university**: *Universitat Autònoma de Barcelona. Campus Universitari), 08193 Bellaterra (Cerdanyola del Vallès), Spain.*

**Competent authority overseeing the establishment**: *Department of Universities, Research and Information Society (DURSI)*

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

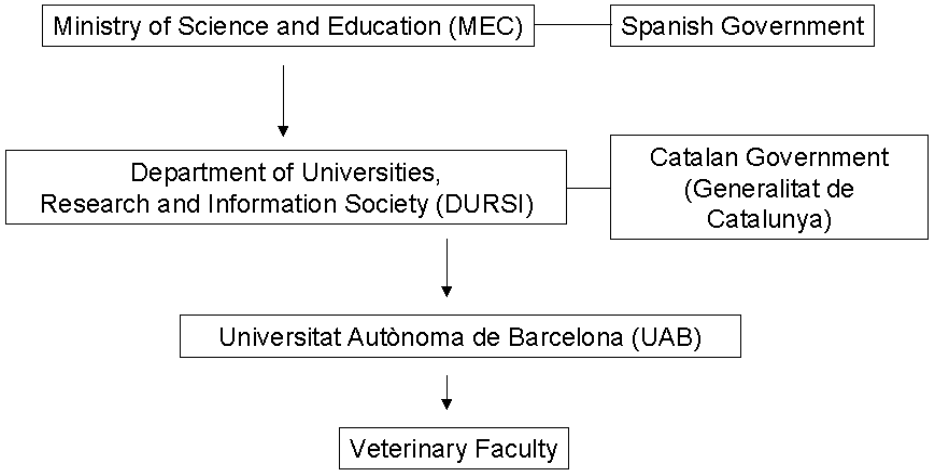



**Figure I.** Administrative structure: Relationships of the Faculty with the university and government bodies.

The UAB is a public University that depends on the Spanish Ministry of Education and Science (MEC) and the Department for Universities, Research and Society of Information (DURSI) of the Catalan Government (Generalitat de Catalunya). The Ministry establishes the curriculum for all nationally recognised degrees, and defines the main political lines of higher Education in Spain. The DURSI is the body responsible for funding and managing Universities in the Autonomous Community of Catalonia. At present, Catalonia has 10 Universities (8 public and 2 private) but only one Veterinary Faculty.

The UAB has 14 Faculties and Schools. The basic figures of the University are shown below. More information is available at the UAB webpage[a].

| | |
|---|---|
| Faculties | 12 |
| Schools | 2 |
| Appointed University Schools | 14 |
| Departments | 50 |
| Research Institutes | 42 |
| General Services for Research and Education Support (S1) | 11 |
| Scientific and Technical Services (S2) | 8 |
| Specialised Services (S3) | 35 |
| Libraries + newspaper/map libraries | 11 |

**Table I.** Faculties, schools, departments and services belonging to the UAB.

[a] http://www.uab.es/english/presentation/dosframes.htm

| Relevant numbers for the academic year 2003-2004 | |
|---|---|
| Undergraduate students | 38,480 |
| Students graduated in 2002-03 | 6,153 |
| Postgraduate students | 10,764 |
| ERASMUS students (incoming) | 1,140 |
| Foreign students (non ERASMUS) (incoming) | 1,831 |
| ERASMUS students from UAB (outgoing) | 789 |
| Academic and research staff | 3,009 |
| Administration and technical staff | 1,449 |
| Degrees | 33 |
| 2n cycle degrees | 9 |
| Higher diplomas (other) | 26 |
| Postgraduate programmes (Ph D) | 86 |
| Master Programmes | 70 |
| Continuing education courses and programmes | 109 |
| Budget (2003) | 266,71 million € |
| Research budget (2003) | 47,91 millions € |

**Table II.** Main figures of the UAB.

The LOU defines two different structures within the Spanish Universities:

- Faculties and Schools: Organise teaching and supervise the correct development of teaching activities.
- University Departments: Mainly responsible for research and undergraduate and postgraduate education.

The Faculty, as responsible for the undergraduate curriculum, assign teaching of a given subject to the departments. The Faculty also supervises undergraduate teaching and implement the quality assessment programmes. The Department must develop the teaching duties assigned by the Faculty. Also, Department can request new academic positions to the University and organise hiring of new teaching staff. Figure II summarizes this structure.

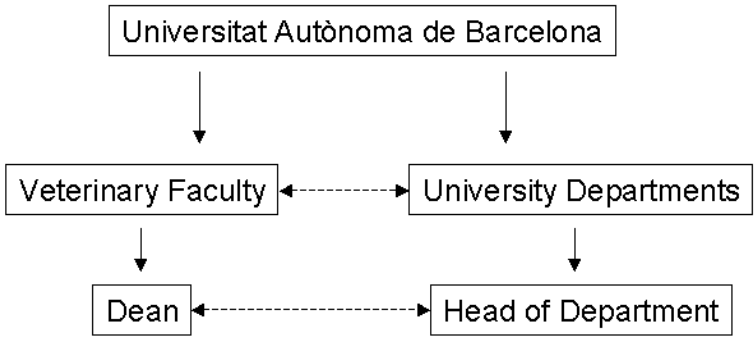
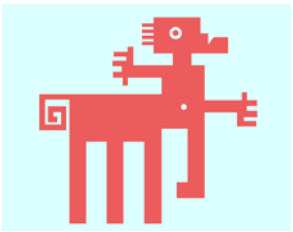



**Figure II**. Scheme of the organisation of the UAB.

| |
|---|
| Provide a diagram of the internal administrative structure of the establishment itself (councils, committees, departments, etc.)<br><br>Describe, briefly the responsibilities, constitution and function of the main administrative bodies (councils, committees etc.)<br><br>Indicate the rules concerning the appointment of the elected officials of the establishment (Dean, Vice-Dean, Heads of Department, etc) |



**THE VETERINARY FACULTY**

In the Veterinary Faculty, there are 12 University Departments involved in teaching:

a) Main Departments involved in teaching at the Veterinary Faculty:
   - Department of Animal Health and Anatomy. Comprises two Units: Animal Health and Animal Anatomy.
   - Department of Animal Science and Food Science. Comprises two Units: Animal Production and Food Science.
   - Department of Animal Medicine and Surgery.

b) "Inter-Faculty" Departments with a Veterinary Unit:
   - Department of Animal and Vegetal Biology and Ecology.
   - Department of Biochemistry and Molecular Biology

- Department of Cellular Biology, Physiology and Immunology.
- Department of Pharmacology, Therapeutics and Toxicology.

c) Departments external to the Veterinary Faculty without a Veterinary Unit:
   - Department of Mathematics
   - Department of Physics.
   - Department of Chemistry.
   - Department of Psychiatry and Legal Medicine.
   - Department of Business Economy.

**Government bodies**

**A. The Faculty:**

The Faculty regulations are gathered in the "Veterinary Faculty Regulations" (VFR, 2004). These Regulations were modified after the approval of the LOU and LUC and the new "UAB Statutes" (2002). The VFR defines the composition, structure and functions of the Faculty, the government bodies and the administration and general services of the establishment.

The government bodies defined by the VFR are: the Dean and the Dean's Team and the Faculty Council ("*Junta de Facultat*").

- The Dean: The Dean holds the highest representation of the Faculty. He/she is elected by the Faculty Council and must be a tenured teacher with a full-time position. The Dean holds his/her position for three years and may be re-elected only once.

- The Dean's Team: The Dean's Team is comprised of Vice-Deans (at present there are three of them: *Teaching and New Technologies*, *Economy and Services*, and *Students and External Practical Work Coordination*), the Secretary (he/she who writes and signs the reports and certificates) and the Studies Coordinators (Table III). The Dean should present his/her team before the election.

| | |
|---|---|
| Dean | **Josep Gasa** |
| Vice-Dean for Teaching Affairs and New Technologies | **Enric Mateu** |
| Vice-Dean for Economy and Services | **Xavier Manteca** |
| Vice-Dean for Students and Practical External Work Coordination | **Jordi Franch** |
| Secretary | **Marc Navarro** |
| Coordinator for Veterinary Studies | **Rosa Rabanal** |
| Coordinator for Food Science and Technology | **Marta Capellas** |
| Main Administrator | **Maite Jiménez** |
| Delegate for EAEVE evaluation 2005 | **Anna Bassols** |

**Table III.** The Dean and the Dean's Team

- The Faculty Council: It is composed by 60 members of the Faculty. This council must have representatives of:
  - Permanent Academic Staff: Accounting for 51% of the seats (31). These must include *ex officio* the Dean and all members of the Dean Team and the Heads of the three main Departments.
  - Students: Accounting for 30% of the seats (18).
  - Administrative Staff: Accounting for 10% of the members (6). The Main Administrator of the Establishment (MAE) holds an *ex officio* representation.
  - Non-permanent teaching staff and postgraduate students: 5 seats.

The members of the Faculty Council are elected by suffrage within a given class. Thus, permanent academic staff elects their representatives, students theirs, and so on. Elected members hold the seat for a three years term.

The main functions of the Faculty Council are:

a) To prepare, approve and modify the Veterinary Faculty Regulations.
b) To elect and revoke the Dean.
c) To supervise the management of the Faculty.
d) To prepare proposals for modification of the curriculum.

e) To approve the teaching programme and to supervise it.
f) To solve teaching conflicts with Departments.
g) To participate in the discussion about new degrees.
h) To approve the annual budget.
i) To supervise the General Services and Facilities.
j) To create working commissions.
k) To propose nominations for *Doctor honoris causa*.

To improve the assessment of different aspects of the Faculty management, the Faculty Council appoints three permanent commissions which analyse and propose solutions for problems arising in their areas (Figure III).

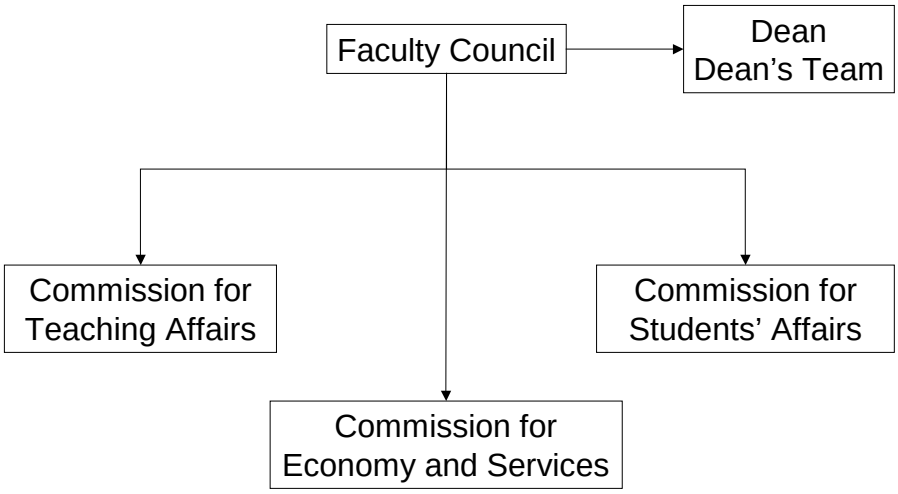



**Figure III.** Permanent commissions appointed by the Faculty Council.

Commission for Teaching Affairs (CTA)*:* It is composed by the Studies Coordinator, three members of the teaching staff, three students, the Head of the Academic Office, and the Dean (or his/her delegate, usually the Vice-Dean for Teaching Affairs). This commission is responsible for the supervision, modification and management of all aspects related to teaching and to the academic curriculum (supervision of the curriculum, proposal of teaching modifications, assessment of the teaching quality, etc).

Commission for Economy and Services*:* It is composed by the Dean or his/her delegate (usually the Vice-Dean for Economy), the MAE, the Head of the Economy Office, one member of the teaching staff, one student, one member of the administrative and research staff, and a member of the General Services of the

Faculty. This commission is responsible for all the economical aspects and supervision of general use facilities and equipment (annual budget, general facilities supervision, needs for new equipment proposals, etc.).

Commission for Students' Affairs*:* It is composed by the Dean or his/her delegate (usually the Vice-Dean for Students), three students that must be members of the Council of Students ("*Consell d'Estudiants"*), three members of the officially recognised student associations, one member of the teaching staff and one member of the administrative staff. This commission is responsible for all the questions related to students.

**B. The Departments:**

Each Department has its own regulations which must agree with the directions given by the UAB Statutes. The government bodies defined by the Statutes are the Head of the Department and the Department Council ("*Consell de Departament*").

- Head of Department: The Head of Department holds the highest representation of the Department. He/she is elected by the Department Council and must be a doctor member of the Academic Staff. The Head of Department holds his/her position for three years and may be re-elected only once. Table IV shows the names of the Heads of Departments of the Faculty or heads of in-Faculty units belonging to external departments.

- The Department Council: It is composed by: 1) all the members of the Academic Staff belonging to that Department and holding a PhD degree; 2) elected members of non-PhD teachers; 3) elected members of the administrative staff and 4) elected members of students.

- Executive Commission of the Department: In addition to the abovementioned organs, usually there is an executive commission. This is the working body of the Department. It is composed by several members of the Academic Staff representing each knowledge area or Unit. Administrative Staff and postgraduate students are also represented.

| Department/Unit | Head |
|---|---|
| Animal Health and Anatomy | **Francisco J. Cabañes** |
| Animal and Food Sciences | **Reyes Pla** |
| Animal Medicine and Surgery | **Ivonne Espada** |
| Unit of Animal Biology | **Silvia Crespo** |
| Unit of Biochemistry and Molecular Biology | **Joaquin Ariño** |
| Unit of Physiology | **Xavier Manteca** |
| Unit of Pharmacology and Toxicology | **Anna Puigdemont** |

**Table IV**. Heads of Faculty Departments and Units.

## Faculty administration office

The MAE is the representative in the Faculty of the University Manager. The MAE is currently included in the Dean's team and is responsible for the management of the Veterinary Faculty budget as well as for the management and administration of services belonging or related with the Faculty. In addition, the MAE may be entrusted by the Dean for other specific activities. Also, the MAE acts as a human resources manager for the non-academic staff. University services under MAE supervision and management are (figure IV and Table V):

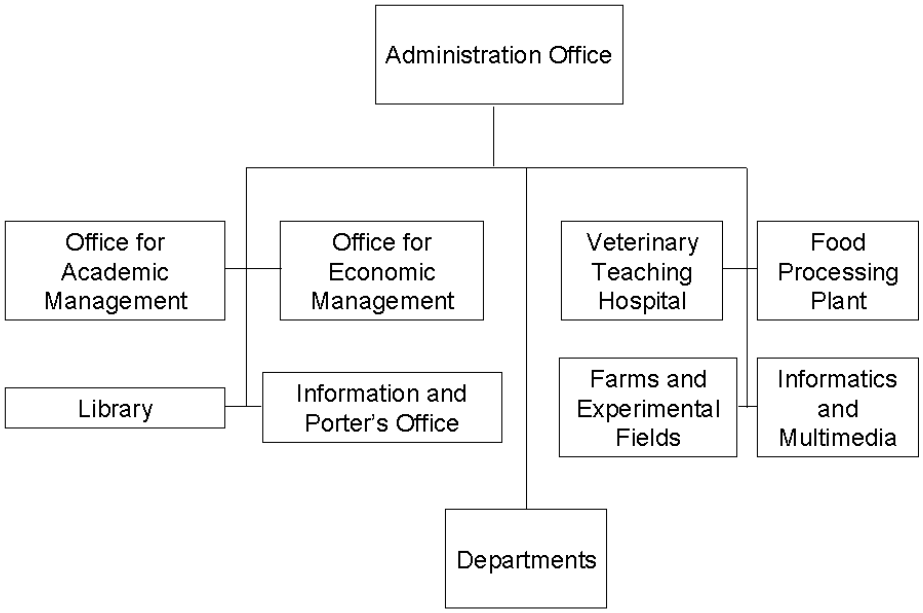



**Figure IV.** Faculty and University services managed by the MAE.

a) Office for Academic Management (9 people): Holds the responsibility for the administrative admission and enrolment of students. It is also in charge of all academic administrative affairs.

b) Office for Economic Management (5 people): It is responsible for the management of both academic and research budgets in conformity with the Dean's office and the Departments, respectively.

c) Information and Porter's Office (8 people): Takes care of the general information for staff, students and visitors. It is in charge of mail and parcel services and supervises the correct operation of the basic services (water, electricity, gas, cleaning, classroom equipment, etc.)

d) Veterinary Teaching Hospital (VTH): The VTH is a University General Service for Support to Research and Education (S1) which has its own management team, independent from the Veterinary Faculty but strongly coordinated with it. The VTH is organized in clinical services. All academic and technical staff must belong to a clinical service according to the field of knowledge of each member. Currently, these services are: 1) Internal Medicine-Small Animal, 2) Surgery – Small Animal, 3) Anaesthesia, 4) Orthopaedics, 5) Dermatology, 6) Neurology, 7) Ophthalmology, 8) Behavioural Disorders, 9) Exotic Pets, 10) Equine Internal Medicine and 11) Equine Surgery . Each service has its own head. The head of the service is responsible for its organization. For further information see chapter 6.

   The VTH management team includes a director and a vice-director that are in charge of all entrepreneurial aspects of the VTH. There is also a teaching director (elected among teachers doing clinical activities) whose duties are to optimise the use of VTH resources for teaching as well to perform a follow-up of all teaching activities developed in the VTH. Also, he/she is who executes the Faculty decisions affecting clinical teaching in the VTH. Thus, the teaching director is the link between the hospital management and the teaching bodies of the Faculty.

   All decisions affecting the management of the VTH are approved by the Directive Council, a committee composed by the Dean, who presides, the director and the vice director, the teaching director, three representatives of the teachers with hospital duties, the director of the Animal Medicine and Surgery Department, the

MAE and one student. The Directive Council meets every trimester in regular sessions or as needed if a given matter requires urgent discussion.

In addition, there is a Commission of Users (CU) that controls the Directive Council and approves the budget. It also decides over matters which the Directive Council transfer to it. The CU is composed by the vice-rector for research, a broad representation of teachers, students and staff with VTH duties and the members of the Directive Council (these later, *ex officio*).

e) Farms and Experimental Fields Service (FEFS): The FEFS is a University General Service for Support to Research and Education (S1) that provides and takes care of live animals for teaching and research in both productive and experimental conditions. The FEFS has its own management team and government bodies: a full time technical director (non-academic) and a part-time scientific coordinator (academic) responsible for all the operative aspects of the service.

All decisions on matters affecting the regular operation of this service are approved by a Directive Council. This council is composed by five teachers with research and teaching duties in the FEFS, the technical director and the scientific coordinator, who presides. The Directive Council meets at least every six months.

The FEFS also has a CU that controls the Directive Council in a similar way to that of the VTH. This Commission is composed by the vice-rector for research, who presides, the manager of the university, the dean, the MAE and an adviser on animal welfare. More information is available in chapter 6.

f) Food Processing Plant (FPP): The FPP is a University Scientific and Technical Service (S2) for teaching and research on food technological processes. The FPP has its own government bodies; a part-time director (academic) responsible for all the operation aspects of the service and a Directive Council.

Decisions affecting the ordinary operation of the FPP are approved by the Directive Council, composed by the Vice-rector for research (president), the Dean, the manager of the university, the Director of the FPP and a representation of students and staff with research and teaching duties in the FPP. The Directive Council meets at least once a year. More information on the FPP is available in chapter 6.

g) Library: See chapter 8 for details.

h) Informatics and multimedia: See chapter 8 for details.

| Office | Head |
|---|---|
| Academic Management | **Cesca Lobo** |
| Economic Management | **Montserrat Tejero** |
| Porter's Office | **Simón Navarro** |
| Veterinary Teaching Hospital | **Berta Juanola** |
| Farms and Experimental Fields | **Ramón Costa/Xavier Such** |
| Food Processing Plant | **Buenaventura Guamis** |
| Library | **Vicenç Allué** |
| Infromatics and multimedia | **Carles Serrano** |

**Table V.** Heads of the Administrative offices.

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

The Social Council of the University is the organ that serves as a liaison between the University and the community. This council provides a forum for the exchange of ideas between the University and the society. As for the Veterinary Faculty, there are no formal arrangements to gain feed-back from the veterinary profession. Nevertheless, the Dean has regular meetings (at least once a year) with representatives of the profession in order to incorporate the profession's interests and needs into the teaching and research program of the Veterinary Faculty.

## 2. COMMENTS

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

Under the former LRU (University Reform Law), replaced by the LOU in 2002, the Veterinary Faculty highest body of government was the Faculty Assembly ("*Claustre de Facultat*"), which was formed by all members of the Academic Staff and representatives of the Administrative Staff and students. The number of members exceeded more than 300. As a consequence, the Faculty Assembly was not operative and actually, the regular body of government was the Faculty Council that had only 60

members. The new law (LOU) defines the Faculty Council as the highest body of government. The Faculty Council assumes the former duties of the Assembly. This new regulation assures the democratic participation of all estates in the government of the Faculty (Academic, Administrative and Technical, Students, Departments and Units involved in teaching). It is still too early to make an accurate judgement of the new Faculty Council functions and accomplishments; nevertheless, we hope that this change will lead to a more agile and efficient system to rule the Veterinary Faculty.

## 3. SUGGESTIONS

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

a) As explained above, there are no formal arrangements enabling the Veterinary Faculty to gain feed-back from the veterinary profession. We believe that this is a major short-coming that should be solved in the near future. A suggestion to be made is to create an “Advisory Council” formed by veterinary professionals that would regularly meet with the Dean or members of the Dean’s team to make the interaction between the academia and the veterinary profession more fluent.

b) The fact that teaching is organised in two parallel lines, Faculty and Departments, somewhat creates coordination problems. Departments impart teaching and the Faculty organises and controls the teaching duties. Thus, when a problem arises, the mechanisms of change must be agreed with the Departments and these could eventually delay any solution.

# Chapter 3 - FINANCES

## 1. FACTUAL INFORMATION

The total expenditure of the Veterinary Faculty is about 12 million €/year of which 70.5% accounts for staff salaries, 13.5% is for operating costs, 14.4% for equipment and 1.5% for maintenance of the building. Regarding revenues, this chapter accounts for some 13.7 million €. A detailed financial analysis of the revenues shows that only 64.3% of this amount came from state funding. The other 35.7% is obtained from research activities (3.1 million €, 28%), clinical activities (1.4 million €, 10.3%) and diagnostic services (0.35 million €, 2.5%). Detail of expenditures and incomes are shown in tables 3.1 and 3.2 (calendar year 2002)[a].

### 3.1: Expenditure

Table 3.1.1: **Annual expenditure of the establishment** [a]

Calendar year 2002

| | **Euros** | **%** |
|---|---|---|
| **a. Personnel** | | |
| a.1 teaching staff | 4,307,589 | 35.08 |
| a.2 support staff | 3,676,130 | 29.94 |
| a.3 research staff | 675,285 | 5.51 |
| *Total for a* | *8,659,004* | *70.53* |
| **b. Operating costs** | | |
| b.1 utilities | 765,955 | 6.24 |
| b.2 expenditure relating specifically to teaching | 291,067 | 2.37 |
| b.3 " " " " research | 238,675 | 1.94 |
| b.4 general operations (excluding the above) | 360,478 | 2.94 |
| Total for b | *1,656,175* | *13.49* |
| **c. Equipment** | | |
| c.1 teaching | 37,927 | 0.31 |
| c.2 research | 1,605,812 | 13.08 |
| c.3 general (or common) equipment | 129,489 | 1.06 |
| Total for c | *1,773,228* | *14.44* |
| **d. Maintenance of buildings** | 189,267 | 1.54 |
| **e. Total expenditure** | **12,277,674** | **100%** |

[a] These figures correspond to 2002 because this is the last year for which a complete audit is available. Figures for 2003 are similar.

Table 3.1.2: **Cost of veterinary training**

| | | **Euros** |
|---|---|---|
| 1. | Annual direct cost of training a student | 8,102[b] |
| 2. | Direct cost of training for a diploma | 49,827[c] |

### 3.2: Revenues

Table 3.2.1: **Annual revenues of the establishment**

Calendar year 2002

| | | **Euros** | **%** |
|---|---|---|---|
| a. | revenue from the State or public authorities | 8,858,410 | 64.30 |
| b. | revenue from private bodies | 0 | |
| c. | revenue from research | 3,146,463 | 22.84 |
| d. | revenue earned and retained by the establishment | | |
| | d.1. registration fees from students | included in a | |
| | d.2. revenue from continuing education | included in a | |
| | d.3. revenue from clinical activities | 1,419,730 | 10.30 |
| | d.4. revenue from diagnostic activities | 352,729 | 2.56 |
| e. | revenue from other sources (please specify) | 0 | |
| f. | Total revenue from all sources | **13,777,332** | |

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).

| **Year *** | **2002** | **2001** | **2000** | **1999** | **1998** |
|---|---|---|---|---|---|
| **Revenue**** | 8,858,410 | 8,777,147 | 5,681,719 | 5,284,114 | 5,078,588 |

*Data correspond to years for which an external audit is available.

** The change in figures for 2001 is attributable to an increase in government funding for medicine and veterinary medicine as well as to a change in the way in which revenues are considered. From that year on, research was also computed on Faculty revenues; before 2001, research was computed on Departments.

[b] Number of students in undergraduate training refers to 2003-2004 academic year. Since the Veterinary Faculty imparts two different degrees (Veterinary Medicine and Food Science and Technology) and the total budget is received as a whole, it is not easy to work out the exact figures corresponding to one of the degrees only. In order to overcome this problem, we used a proportional distribution. Thus, the average number of students enrolled in both degrees is 1,026 (958 for veterinary medicine plus 170 for food science).

[c] It has been considered an average number of 6.15 years of training for a veterinary student.

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

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

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

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

Clinical services: 10% of the total invoicing of the VTH is given to the UAB management service.

Diagnostic services: 15% of the total invoicing is given to UAB. This amount is later distributed between the UAB management service (12%) and the Departments to which the Diagnostic Service belongs (3%).

Research grants: 15% of the grant is given to UAB as overhead. This overhead is distributed as for diagnostic services. However, the overhead is foreseen to increase up to 30% in 2007.

Other revenues (continuous education courses and diplomas): Twenty five percent of the registration fees go to the UAB. This amount is distributed between the Post-graduate Education School (75%) and the departments involved in the course (25%).

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

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

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

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

Most of the University budget (78.7% including fees from the students) comes from the Catalan Government (DURSI). The model of distribution used by DURSI is based mainly in the number of students and staff modified by a coefficient. The number of students is assessed by a balance between the number of offered and imparted credits. The coefficient takes into account the higher operating costs of health and life sciences schools. The UAB authority (University Commission for Economy) uses a similar formula to distribute the budget to Faculties and Departments. During the last

ten years the Veterinary Faculty also received some extra funds to improve teaching for European evaluation.

Faculty budget for teaching (b.2) relies mainly on the number of students modified by a coefficient to correct for the increased expenses of health sciences faculties (in our case this coefficient is 2.31 in a scale from 1.00 to 2.33) and includes the budget for the administration office. Besides, budget of the Departments (b.3) is mainly based in the number of full time equivalent staff and also in postgraduate education activities.

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

Expenditure specifically related with teaching comes from the Faculty budget (b.2). The Faculty Council approves, upon request of the Faculty Commission for Economy, the annual budget. In this budget, funds for the Dean's Office, teaching services and teaching activities are included. The total amount allocated to each teaching subject has two components, a small one, almost constant, related with the theoretical teaching and a largest portion that is distributed according to the load of practical and clinical work. This allocation of funds is decided on the basis of the actual cost of the practical and clinical teaching carried out in each subject. The approval of an increase in the teaching budget for a given course is subjected to the control of the CTA that supervises that this change resulted in an improvement of teaching quality.

Budget allocated for expenditures in teaching equipment (Table 3.1.1, c.1) is directly distributed by the University authority (University Commission for Academic Affairs and University Commission for Economy) on a yearly basis. The University request to the Faculty to prepare a memorandum with a detailed explanation of needs and priorities. This document needs approval of the Faculty Council (c.1).

The Dean and his/her team, upon request by the Faculty Council or having its approval, decides on the priorities for funding capital expenditure and submits them to the University Government bodies that have the right to approve or reject the proposals.

Please indicate whether students:

- pay tuition/registration fees: **YES**
- How much these are: **12.77€/credit (10 hours)**
- How they are decided: **Fees are decided by DURSI (Catalan Government)**
- How the funds are distributed. **This is explained in 3.2.1**

## 2. COMMENTS

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

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

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

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

The main difficulties concerning the present financial situation are:

a) Personnel:

- In spite that both the Spanish and the Catalan governments give productivity bonus for teaching (every five years) and research (every six years) to permanent position staff, and that civil servants have a high job stability, salaries for teachers are not equivalent yet to those of similarly trained professionals working in the private sectors. This fact especially affects non-permanent staff and makes difficult the recruitment of future teaching and research staff having a high standard of achievements. In addition, under the current Spanish law all university teachers have teaching and research duties and better ratio teachers/students will improve the equilibrium between teaching and research activities.

- Insufficient University public funds are available for support staff. About one third (43/140) of the Faculty support staff still is completely paid by Department research projects. This is a positive fact in the sense that shows that the Faculty is a very dynamic institution for generating research funds. However, the negative side is that support staff largely depends on funds that are distributed in a competitive way. Thus, if research funding decreases, the number of support staff will also decrease. It would be desirable to reach a ratio 75:25 between the funding of support staff coming from the university and the funding coming from research projects.

- The Faculty also has a scarcity of public funds available for postgraduate students, mainly in clinical positions. For instance, at the VTH all the internships (14) are paid by the own VTH budget and residences (8) are funded by private companies. At least, it would be desirable to reach a 50:50 ratio between public and private funding of these positions.

b) Operating costs:

- The 2004 Faculty teaching budget only fulfilled the 76% of the calculated practical teaching cost (75% in 2003 and 2002) and it did not take into account the whole expenditure for teaching at the VTH and scarcely funded the extramural professional training programmes. These are top priorities in the near future.

- The University provides some money for projects aimed to improve or innovative teaching, but very scarce seed money for research projects. The Departments get most of the research money from competitive proposals submitted to and approved by European, Spanish or Catalan government or from private companies.

- In the UAB, all the specialised services (called S3) have to be self-financed and administrative management depends on their own. As it has been said before, about 15% of the income of these services is kept by the University. This is not a high proportion but actually becomes a kind of an additional tax. For instance, a service generating some 100,000 € per year will give to the University 15,000 €. This amount is equivalent to half of the annual salary of a basic support technician. In practice, this means to lose competitiveness.

- General Services for Research and Education Support (S1) or Scientific and Technical Services (S2), as for instance Electronic Microscopy Service, Farms and Experimental Fields Service, the Food Processing Plant or Chemical Analysis Service, organically depend on the University Vice-rector and functionally should be partially self-financed by agreement among each of them and the University Administration Office. For example, the Veterinary Teaching Hospital is a S1 which agreement marks the highest self-financing level up to 95%.

c) Equipment:

- In a broad sense, funds to buy or renew the teaching, laboratory and clinical equipments is always scarce to keep all equipment up to date. The university allocates some funds to these purposes, especially for teaching, and tries to support faculties and departments in their needs. However, these funds are not enough to reach all needs (52,000 € in 2004). Actions to get more private funding sources or funding from charities may help to alleviate these problems

All comments may be considered as high priorities for funding but, probably, those related with personnel and resources for practical, clinical and extramural teaching included in the operating cost section may be more crucial. As it might be deduced from the preceding comments, in the present financial situation this complain is addressed to increase the total amount of funding since the degree of autonomy and flexibility given to the establishment in financial matters is high.

## 3. SUGGESTIONS

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

From the abovementioned comments, it is clear that some actions should be taken to correct some problems. Main suggestions to address these issues are:

a) To negotiate with the University a higher stability of the support staff. This negotiation must consider the incomes produced by the research and services of the Faculty. In fact, a stabilization plan is being developed for staff with more than 3 years of service.

b) To increase external (private or charity) funding. This can be done by promoting services to outside professionals, industries, etc. and by actively interacting with charity organisations. This extra funding should be allocated to operating costs, teaching, equipment and to increase the number of internships and residencies

# Chapter 4 - CURRICULUM

## 1. FACTUAL INFORMATION

| |
|---|
| Indicate whether there is a defined national curriculum and (if applicable) how and by what body decisions are taken on this.<br><br>Describe the degree of freedom that the establishment has to change the curriculum.<br><br>Outline how decisions on curriculum matters and course content are taken within the establishment.<br><br>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 Spanish laws governing the University development (basically, "LOU" and the general directives for curricular development or "*Directrices Generales de los Planes de Estudio Universitarios*"), all university studies must be comprised of compulsory or core subjects, elective subjects and the so-called "free choice" or optional subjects. These later are considered as a formative complement not necessarily linked to the specific studies and have to account for a 10% of the total hours in the curriculum. For each type of studies (i.e., medicine, veterinary medicine, law, etc.) the total hours of core and elective subjects must agree with the minimum requirements stated in the specific Spanish directive, but there is no maximum number of credits for each subject. These directives also state the minimum number of theoretical and practical lectures for each subject.

Every university has a certain capacity, nevertheless very limited, to adjust the distribution of credits to its needs. This freedom is reflected in the distribution of core and elective subjects. For example, a topic included in Directive 78/1027 EEC can be split in two different courses in Barcelona and be included in only one course elsewhere. For electives, each university has the freedom to decide whether to include a given subject or not.

In the case of veterinary studies, core subjects must account for 85% of the total curriculum and electives should be, at maximum, 5%. This situation permits that different Spanish Universities may impart a similar curriculum with a slightly different distribution of courses. Approved curriculum for veterinary studies at the UAB include 4,200 hours of which 420 (10%) are "free choice" subjects, 215 (5%) are elective subjects (necessarily belonging to specific veterinary subjects) and the other 3,565 hours must correspond to core subjects. In UAB, the policy is to reach a 1:1 ratio or better between theoretical

lectures and practice but, in any case, internal changes of the curriculum cannot contravene the minimum number of hours of each type of activities described in the specific directive passed by the Spanish Government.

If an establishments wishes to change the curriculum, the process to achieve that is strictly regulated. Under the current laws, the process should be initiated by an intra-establishment commission that elaborates a proposal for a change. That proposal should be sent to the Faculty Council for approval. Once approved, the proposal should be sent to the Office for Quality Promotion (OQP), an independent body of the University. If OQP approves the change, the proposal would be submitted to the University Government Council. Once approved at this university level, the proposal is submitted to the Coordination Council of Spanish Universities (CCSU) for further examination. If CCSU approves the proposal, a positive memorandum is sent to the Spanish Ministry for Education that has the final decision. This process can take as long as two or three years from the beginning to the end.

At present, there is a law draft elaborated by the new Spanish government aimed to change the whole structure of university degrees. The main changes included in this draft are an increase in elective subjects up to at least 25%, a decrease in “free choice subjects” from 10% to equal or less than 5% and a complete change in the curriculum review process. If this law is passed in the parliament, each university will have the power to change the curriculum by its own provided that such a change affected only elective subjects or no more than 10% of the core subjects.

Course contents depend upon the criteria of teachers in charge of each course but distribution of hours and contents must to be approved by the CTA. For instance, if the teachers in charge of a given decide to change some hours from a practical activity to a series of supervised works, this change has to be presented to the CTA as a proposal with a detailed rationale supporting the change. The matter is discussed and voted for final approval or rejection. Also, there is a semestral meeting between students and teachers to evaluate the development of each course. The opinions recorded in those meetings are taking into account to avoid unnecessary overlaps between courses or to improve the course development. A memorandum of these meetings must be sent to the vice-rector for further evaluation.

### 4.1: CURRICULUM FOLLOWED BY ALL STUDENTS

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

| | Hours of training | | | | | |
|---|---|---|---|---|---|---|
| | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other*** | **Total** |
| **First year** | 435 | 200 | 30 | 6 | 64[b] | 735 |
| **Second** | 450 | 211 | 47.5 | 6 | 80.5[b] | 795 |
| **Third year** | 446 | 147 | 57 | 74 | 76[b] | 800 |
| **Fourth year** | 285 | 96.5 | 36 | 90 | 32.5[b] | 540 |
| **Fifth year** | 300 | 64 | 32 | 44 +200[a] | 55[b] | 695 |
| **Sixth year** | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| **Total** | 1916 | 718.5 | 202.5 | 420 | 308 | 3565 |

a Extramural pre-professional practice
b Seminars (discussion of scientific papers, etc.)
N.A. = Not appliable

**Notes:** 1) Because of the very nature of some activities, it is difficult to establish a clear cut between categories. For instance, in the course "Radiology" small groups of students receive clinical histories with the corresponding diagnostic imaging files and must analyse and discuss the case in order to establish a diagnosis and a prognosis. This kind of activity could be classified as a practical work, a supervised work or even, "in a broad sense as a clinical activity. According to the literality of the guidelines of the present document, these types of activities have been classified as practical work or supervised work if students must produce any kind of report or presentation. In some instances, where there is a discussion activity (i.e. discussion of a scientific paper, solving cases, etc.) with active involvement of the student but with no need to produce a report or a presentation, these hours have been listed under "other". 2) Extramural pre-professional practice has been included here. Although in a narrow sense this is not exact, a great majority of students (more than three quarters) spend their extramural work in clinical activities with small animals, large animals or equines and, in fact, these activities are predominantly clinical.

Tables 4.1.2: **Yearly curriculum studies**

**Year of the course**: **1**

| | Hours of training | | | | | |
|---|---|---|---|---|---|---|
| **Subject** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other*** | **Total** |
| **Anatomy I** | 45 | 60 | | | | 105 |
| **Cell Biology** | 45 | 15 | | | | 60 |
| **Mathematics** | 45 | 15 | | | 15 | 75 |
| **Physics** | 45 | 8 | 15 | | 7 | 75 |
| **Chemistry** | 45 | 15 | | | 15 | 75 |
| **Animal and vegetal biology** | 45 | 18 | | | 12 | 75 |
| **Ethnology** | 30 | | | 6 | 9 | 45 |
| **Ethology** | 30 | | 15 | | | 45 |
| **Biochemistry I** | 45 | 9 | | | 6 | 60 |
| **Anatomy II** | 60 | 60 | | | | 120 |
| **Total** | 435 | 200 | 30 | 6 | 64 | 735 |

*See note 1 on table 4.1.

**Year of the course**: **2**

| | Hours of training | | | | | |
|---|---|---|---|---|---|---|
| **Subject** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other*** | **Total** |
| **Biochemistry II** | 30 | 15 | | | 15 | 60 |
| **Physiology I** | 45 | 10 | 4 | 6 | 10 | 75 |
| **Microbiology I** | 30 | 27.5 | 1.5 | | 1 | 60 |
| **Histology** | 45 | 37 | | | 8 | 90 |
| **Agriculture** | 45 | 24 | 6 | | | 75 |
| **Epidemiology** | 30 | 14 | 14 | | 2 | 60 |
| **Parasitology** | 30 | 23 | | | 7 | 60 |
| **Genetics** | 45 | 20 | | | 25 | 90 |
| **Physiology II** | 45 | 6 | 14 | | 10 | 75 |
| **Microbiology II** | 45 | 15 | | | | 60 |
| **Agrarian economy** | 30 | 7 | 8 | | | 45 |
| **Immunology** | 30 | 12.5 | | | 2.5 | 45 |
| **Total** | 450 | 211 | 47.5 | 6 | 80.5 | 795 |

**Year of the course**: **3**

| | Hours of training | | | | | |
|---|---|---|---|---|---|---|
| **Subject** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other*** | **Total** |
| **Pharmacology I** | 30 | 14 | 8 | 6 | 2 | 60 |
| **Animal Production I** | 45 | | 2 | 6 | 7 | 60 |
| **Nutrition I** | 30 | 19 | | 5 | 6 | 60 |
| **Physiopathology** | 30 | 4 | | 5 | 6 | 45 |
| **Animal breeding** | 45 | 10 | 15 | 5 | 0 | 75 |
| **General Pathology** | 30 | 24 | 20 | | 1 | 75 |
| **Pharmacology II** | 45 | 10 | 4 | | 1 | 60 |
| **Animal Production II** | 30 | 16 | 2 | 7 | 5 | 60 |
| **Nutrition II** | 41 | 14 | 4 | | 1 | 60 |
| **Propedeutics (examination)** | 30 | | | 30 | 15 | 75 |
| **Reproduction** | 30 | 9 | 2 | 10 | 9 | 60 |
| **Food technology** | 60 | 27 | | | 23 | 110 |
| **Total** | 446 | 147 | 57 | 74 | 76 | 800 |

**Year of the course**: **4**

| | Hours of training | | | | | |
|---|---|---|---|---|---|---|
| **Subject** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other*** | **Total** |
| **General Surgery** | 45 | 4 | 2 | 9.5 | 14.5 | 75 |
| **Parasitic diseases** | 45 | 22.5 | 15 | 7.5 | | 90 |
| **Infectious diseases I** | 45 | 15 | | | | 60 |
| **Radiology** | 15 | 10 | | 5 | | 30 |
| **Clinical Surgery** | 30 | | 5 | 40 | | 75 |
| **Special pathology** | 45 | 25 | 12 | | 8 | 90 |
| **Infectious diseases II** | 30 | 20 | | 10 | | 60 |
| **Clinical Medicine I** | 30 | | 2 | 18 | 10 | 60 |
| **Total** | 285 | 96.5 | 36 | 90 | 32.5 | 540 |

**Year of the course**: **5**

| | Hours of training | | | | | |
|---|---|---|---|---|---|---|
| **Subject** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other*** | **Total** |
| **Clinical Medicine II** | 30 | | | 30 | | 60 |
| **Hygiene I** | 45 | 8 | 7 | | | 60 |
| **Obstetrics and Theriogenology** | 45 | 4 | 17 | 14 | 10 | 90 |
| **Ethics and legislation** | 30 | | | | 15 | 45 |
| **Therapeutic** | 45 | | | | 15 | 60 |
| **Hygiene II** | 30 | 24* | 6 | | | 60 |
| **Toxicology** | 45 | 20 | | | 10 | 75 |
| **Preventive Medicine** | 30 | 8 | 2 | | 5 | 45 |
| **Extramural professional practice** | | | | 200 | | 200 |
| **Total** | 300 | 64 | 32 | 244 | 55 | 695 |

*Slaughterhouse practice is included in this chapter

**Table 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**

| A. | Subject<br>Basic subjects | Hours in course | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other** | **Total** |
| | **Anatomy (incl. histology and embryology)** | 150 | 157 | | | 8 | 315 |
| | **Biochemistry and molecular biology** | 75 | 24 | | | 21 | 120 |
| | **Biology (incl. cell biology)** | 90 | 33 | | | 12 | 135 |
| | **Biophysics** | 45 | 8 | 15 | | 7 | 75 |
| | **Biostatistics** | 45 | 15 | | | 15 | 75 |
| | **Chemistry** | 45 | 15 | | | 15 | 75 |
| | **Epidemiology** | 30 | 14 | 14 | | 2 | 60 |
| | **Genetics** | 45 | 20 | | | 25 | 90 |
| | **Immunology** | 30 | 12.5 | | | 2.5 | 45 |
| | **Microbiology** [1] | 75 | 42.5 | 1.5 | | 1 | 120 |
| | **Parasitology** [2] | 30 | 23 | | | 7 | 60 |
| | **Pathological anatomy (macroscopic & microscopic)** | 75 | 49 | 32 | | 9 | 165 |
| | **Pharmacy** [3] | 25 | 8 | 4 | | 1 | 38 |
| | **Pharmacology** [3] | 50 | 16 | 8 | 6 | 2 | 82 |
| | **Physiology** | 90 | 16 | 18 | 6 | 20 | 150 |
| | **Physiopathology** | 30 | 4 | | 5 | 6 | 45 |
| | **Scientific and technical information and documentation methods** [4] | | | | | | |
| | **Toxicology (incl. environmental pollution)** | 40 | 20 | | | 10 | 75 |
| | *Total* | 970 | 477 | 92.5 | 17 | 163.5 | 1725 |

[1] The course contents belonging to infectious diseases are included in “clinical subjects”.

[2] The course contents belonging to parasitic diseases are also included in “clinical subjects”.

[3] Pharmacy and pharmacology are taught under “Pharmacology I and Pharmacology II”. About 2/3 of the total hours of these two courses correspond to pharmacology and 1/3 to pharmacy.

[4] This subject are taught in several courses as specific parts of each one.

| B. | Animal Production | Lectures | Practical work | Supervised work | Clinical work | Other | Total |
|---|---|---|---|---|---|---|---|
| | **Agronomy** | 45 | 24 | 6 | | | 75 |
| | **Animal behaviour (incl. behavioural disorders)** | 20 | | 15 | | | 35 |
| | **Animal husbandry (incl. livestock production systems)** | 145 | 26 | 19 | 24 | 21 | 190 |
| | **Animal nutrition and feeding** | 71 | 33 | 4 | 5 | 7 | 120 |
| | **Animal protection and welfare** [5] | 20 | | | | | 20 |
| | **Environmental protection** [6] | 10 | | | | | 10 |
| | **Preventive veterinary medicine (incl. health monitoring programmes)** [7] | 15 | 4 | 2 | | 5 | 26 |
| | **Reproduction (incl. artificial breeding methods)** | 30 | 9 | 2 | 10 | 9 | 60 |
| | **Rural economics** | 30 | 7 | 8 | | | 45 |
| | *Total* | 386 | 103 | 56 | 39 | 42 | 626 |

[5] Ethology (animal behaviour) and animal welfare are taught within the same course. The total number of hours is listed under "Animal behaviour" (45 h). Approximately, ¾ of this course are devoted to ethology and 1/4 to animal welfare and protection. Additional contents of animal protection and welfare are included in animal husbandry and legislation. The number of hours listed in the table represents an approximation.

[6] Course contents corresponding to environmental protection are split among several courses, including animal production and toxicology. The number of hours listed in the table represents an approximation.

[7] The total number of hours listed only corresponds to "Preventive Veterinary Medicine" course. Additional contents of preventive medicine are included in infectious diseases, parasitic diseases, reproduction and other subjects.

| C. | Clinical subjects | Lectures | Practical work | Supervised work | Clinical work | Other | Total |
|---|---|---|---|---|---|---|---|
| | **Anaesthetics** [8] | 10 | | | 15 | | 25 |
| | **Clinical examination and diagnosis and laboratory diagnostic methods** [9] | 30 | 57.5 | | 30 | 15 | 132.5 |
| | **Clinical medicine** [10] | 180 | | 17 | 65.5 | 10 | 272.5 |
| | **Diagnostic imaging** | 15 | 10 | | 5 | | 30 |
| | **Obstetrics** [11a] | 15 | | 7 | 7 | | 29 |
| | **Reproductive disorders** [11a,b] | 30 | 4 | 10 | 7 | 10 | 61 |
| | **State veterinary medicine, zoonoses, public health and forensic medicine** [12] | 15 | 4 | | | | 19 |
| | **Surgery** | 65 | 4 | 7 | 34.5 | 14.5 | 125 |
| | **Therapeutics** | 45 | | | | 15 | 60 |
| | *Total* | 405 | 79.5 | 41 | 164 | 64.5 | 754 |

[8] Course contents corresponding to anaesthesiology are included in "Surgery" and account for some 25 hours including lectures and clinical activities.

[9] The hours listed in this item correspond to our course of "propedeutics" (clinical examination and laboratory methods excluding infectious and parasitic diseases) plus the hours corresponding to diagnostic methods in infectious and parasitic diseases (clinical microbiology and virology and clinical parasitology). Diagnostic histopathology is listed under pathological anatomy.

[10] Under clinical medicine we also included lectures and activities corresponding to infectious and parasitic diseases not listed previously.

[11a] Reproductive disorders and obstetrics are taught in the same course (Obstetrics and theriogenology). [11b] Infectious and parasitic processes causing reproductive disorders are taught in "Infectious diseases" and "Parasitic diseases" and are included under clinical medicine.

[12] In this item we only included a part of state veterinary medicine (fight against diseases of animals). Other contents corresponding to this item (i.e. zoonoses and public health) are split among infectious and parasitic diseases, food hygiene and toxicology. Also, a part of forensic medicine is included in special pathology.

| D. | Food Hygiene | Lectures | Practical work | Supervised work | Clinical work | Other | Total |
|---|---|---|---|---|---|---|---|
| | **Certification of food production units** [13] | | | | | | |
| | **Food certification** [13] | | | | | | |
| | **Food hygiene and food quality (incl. legislation)** [13] | 75 | 32 | 13 | | | 120 |
| | **Food inspection, particularly food of animal origin**[13] | | | | | | |
| | **Food science and technology** | 60 | 27 | | | 23 | 110 |
| | *Total* | 135 | 59 | 13 | | 23 | 230 |

[13] All contents belonging to certification of food production units, food certification, food legislation, food inspection, etc. are taught in our courses "Hygiene I and II". The number of hours listed correspond to all these contents as a whole. These courses also include slaughterhouse practice.

| E. | Professional knowledge | Lectures | Practical work | Supervised work | Clinical work | Other | Total |
|---|---|---|---|---|---|---|---|
| | **Practice management** [14] | | | | 200 | | 200 |
| | **Professional ethics** [15] | 10 | | | | 7.5 | 17.5 |
| | **Veterinary certification and report writing** [16] | | | | | | |
| | **Veterinary legislation** [15] | 10 | | | | 7.5 | 17.5 |
| | **Total** | 20 | | | 200 | 15 | 235 |

[14] In this item we listed the extramural work. Additional contents can be found split in several activities (i.e. hospital work, farm work, etc.).

[15] Veterinary ethics and a part of legislation are taught under "Deontology and legal veterinary medicine". Approximately, half of this course belongs to ethics and the other half to veterinary legislation. It is worth to note that specific legislation related to food, infectious diseases or parasitic diseases is taught in the corresponding courses.

[16] These contents are split in several courses among the curriculum.

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

| Subject | Hours in course | | | | | |
|---|---|---|---|---|---|---|
| | Lectures | Practical work | Supervised work | Clinical work | Other | Total |
| **Ethnology** | 30 | | | 6 | 9 | |

### 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 stated before under “Factual Information”, students must take 215 hours of elective courses. With few exceptions, these courses can be taken only during the fourth and fifth year of the curriculum. There are no tracks and students can choose freely among all elective courses but, in practice, there are groups of courses aimed to specific areas, namely, “Small animal and equine medicine”, “Population medicine and livestock production “, “Food science, hygiene and public health “ and a fourth group of varied subjects. The first three groups of electives allow the student to complete all the required elective hours (215) and, for this reason, students tend to choose mainly courses belonging to a given group. As a matter of fact, considering 145 students/year, about 80 students choose courses belonging to “Small animal and equine medicine”, and the rest choose either “Population medicine and livestock production” or “Food science, hygiene and public health“. Diversification courses serve mostly to give complementary knowledge that can be useful to different branches of electives.

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

| **Elective group 1: Small animal and equine medicine** | | **Hours in course** | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrolled students (2004-05)** | **Courses within elective** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other** | **Total** |
| 74 | **Ophthalmology** | 15 | 5 | | 10 | | 30 |
| 86 | **Clinical anatomy** | 15 | | | 15 | | 30 |
| 100 | **Clinical biochemistry** | 15 | 12 | 3 | | | 30 |
| 87 | **Neurology** | 15 | | | 15 | | 30 |
| 80 | **Exotic pets** | 15 | 4 | 3 | 8 | | 30 |
| 93 | **Feeding and husbandry of pet animals** | 20 | | 10 | | | 30 |
| 101 | **Internal medicine** | 30 | | 6 | 24 | | 60 |
| 71 | **Traumatology** | 15 | 2 | 9 | 19 | | 45 |
| 106 | **Dermatology** | 30 | 4 | | 11 | | 45 |
| 32 | **Equine medicine** | 30 | | 10 | 20 | | 60 |
| *Average: 83* | ***Total*** | 200 | 27 | 41 | 122 | | 390 |

| Elective group 2: Population medicine and livestock production | | Hours in course | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrolled students (2004-05)** | **Courses within elective** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other** | **Total** |
| 20 | **Swine medicine** | 30 | 15 | | 15 | | 60 |
| 31 | **Swine production** | 45 | 6 | 14 | 10 | | 75 |
| 49 | **Ruminant medicine** | 45 | 15 | | | | 60 |
| 39 | **Bovine production** | 45 | 20 | 8 | 2 | | 75 |
| 23 | **Ovine and caprine production** | 30 | 4 | 3 | 8 | | 45 |
| 25 | **Feedstuffs** | 45 | 12 | 3 | | | 60 |
| 13 | **Poultry and rabbit medicine** | 30 | 1 | 7 | 7 | | 45 |
| 8 | **Poultry production** | 45 | 3 | | 12 | | 60 |
| 31 | **Rabbit production** | 30 | | 8 | 7 | | 45 |
| 14 | **Fish medicine** | 30 | 15 | | | | 45 |
| 10 | **Fish production** | 30 | 2 | 10 | 3 | | 45 |
| *Average: 24* | ***Total*** | 405 | 93 | 53 | 64 | | 615 |

| Elective group 3: Food science, hygiene and public health | | Hours in course | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrolled students (2004-05)** | **Courses within elective** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other** | **Total** |
| 36 | **Food microbiology** | 30 | 15 | | | | 45 |
| 76 | **Meat science** | 45 | 20 | 6 | | 4* | 75 |
| 4 | **Fish & seafood science** | 30 | 6 | 4 | | 5* | 45 |
| 9 | **Milk science** | 45 | 28 | 2 | | | 75 |
| 19 | **Zoonoses** | 30 | 2 | | | 13 | 45 |
| *Average: 29* | ***Total*** | 180 | 71 | 12 | | 22 | 285 |

*Include practice in food industries.

| Elective group 4: Diversification | | Hours in course | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrolled students (2004-05)** | **Courses within elective** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other** | **Total** |
| 15 | **Biometry** | 30 | 15 | | | | 45 |
| 29 | **Ecology** | 30 | 9.5 | 5.5 | | | 45 |
| 48 | **Micology** | 15 | 15 | | | | 30 |
| 4 | **Molecular biochemistry and genetics** | 30 | 12 | 3 | | | 45 |
| 56 | **Enterprise management** | 30 | 2 | 13 | | | 45 |
| 15 | **Embryo technology** | 15 | 15 | | | | 30 |
| *Average: 28* | ***Total*** | 150 | 68.5 | 21.5 | | | 240 |

### 4.3: OPTIONAL SUBJECTS

The optional subjects listed below correspond to “free choice” courses related more or less directly to the veterinary field. As a matter of fact, most students choose optional matters among electives described in 4.2.

Table 4.3: **Optional subjects in the veterinary curriculum**

| | | Hours in course | | | | | |
|---|---|---|---|---|---|---|---|
| **Subject** | **Year(s) offered** | **Lectures** | **Practical work** | **Supervised work** | **Clinical work** | **Other** | **Total** |
| **Population, food resources and development** | All | 45 | | | | 15 | 60 |
| **Food safety** | All | 45 | 15 | | | | 60 |
| **Agriculture and sustainability** | All | 45 | | | | 15 | 60 |
| **History and documentation of veterinary medicine** | All | 30 | 10 | | | 10 | 50 |
| **Fisheries and seafood** | All | 45 | 10 | | | 5 | 60 |
| **Practical work** | All | | 180 | | | | 180 |
| ***Total*** | | 210 | 215 | | | 45 | 470 |

The obligatory extramural work can be divided between (1) those extramural activities that belong to a certain course or group of courses and (2) the pre-professional training that is carried out in the fourth and fifth years of the curriculum. For the sake of clarity, extramural work such as mobile clinic belonging to a given course is explained in 4.7. and here we only include pre-professional training. The aim of this extramural work is to integrate future veterinarians in the “real” field practice of the several areas of the veterinary profession. In our faculty, this extramural work can be done in slaughterhouses and Public Health Offices (6 weeks full-time, mostly night work in slaughterhouses), Animal Health Authority Laboratories (10 full-time weeks), equine/small animal clinics/hospitals (10 full-time weeks), livestock production/medicine (10 weeks) or industries (10 weeks). In fact, most students choose clinical activities as extramural work. Students also have the possibility to make a proposal for carrying out this extramural work in other institutions not listed by the Faculty. In such a case, and after an inquiry on the quality of the proposed centre, the Faculty Coordinator for Extramural Work and the CTA of the Faculty may give their approval to the proposal. Evaluation of the extramural work is done by means of a double mechanism. In one hand, the student evaluates the centre where he/she has done the activity; on the other hand, the responsible of the receiving centre produces a report qualifying the

performance of the student. In the event of a negative report, the student does not pass this extramural work and must repeat this training phase to obtain the degree.

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

| Nature of work | Minimum period | Year of the course |
|---|---|---|
| Pre-professional practice (full-time) | 10 weeks* | 4-5 |

* 6 weeks for practice in slaughterhouses (nightshifts). By law, this extramural work computes as 200 hours although in fact 10 full-time weeks is equivalent to 400 h.

### 4.5: RATIOS

In the following heading we provide different values for each ratio. The first one only takes into account the core subjects of the curriculum and does not compute elective subjects. The second one reflects the same ratios distributed by the core subject categorisation of table 4.1.3. A third ratio is provided reflecting electives. As shown before, some 80 students enrol in elective clinical subjects while the rest splits between other elective courses. The reason for providing all these ratios is because the nature of the veterinary studies in Spain. According to the laws in force, veterinarians are competent in Veterinary Medicine and Health, Livestock Production (Zootechnics), Food Technology and Food Safety and Public Health. Compared to other European countries, we also have a large load on basic subjects; this frame leads to an increase of the total number of non-clinical hours belonging to the non-clinical competences.

***Core subject ratios***:

$$\frac{\text{Theoretical training}}{\text{Practical and clinical Training}} = \frac{1{,}916}{1{,}649} = \frac{1}{0.86}$$

$$\frac{\text{Clinical training}^{a}}{\text{Theoretical and practical training}} = \frac{420}{3{,}145} = \frac{1}{7.5}$$

[a] Pre-professional training has been counted as clinical hours because for most students correspond to small animal or equine practice (about 100 students). With this consideration, we preferred to include this item here. Should these hours not be accounted as clinical training, the ratio “theoretical and practical *versus* clinical” will change from 3,145/420 (1:7.5) to 3,345/220 (1:15)

***Ratios by category of core subjects***[b]**:**

Basic subjects

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical training | = | 970 / 750 | = 1 / 0.77 |

| | | | |
|---|---|---|---|
| Clinical training / Theoretical and practical training | = | 17 / 1,703 | = 1 / 100 |

Animal Production

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical training | = | 386 / 240 | = 1 / 0.62 |

| | | | |
|---|---|---|---|
| Clinical training / Theoretical and practical training | = | 39 / 587 | = 1 / 15.0 |

Clinical subjects

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical training | = | 405 / 349 | = 1 / 0.86 |

| | | | |
|---|---|---|---|
| Clinical training / Theoretical and practical training | = | 164 / 590 | = 1 / 3.6 |

Food Hygiene

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical training | = | 135 / 95 | = 1 / 0.70 |

Professional knowledge

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical* training | = | 20 / 215 | = 1 / 10.8 |

* Extramural work is included here

[b] Clinical ratios are not provided for Food Hygiene and Professional knowledge.

***Elective course ratios:***

Small animal and equine medicine

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical training | = | 200 / 190 | = 1 / 0.95 |

| | | | |
|---|---|---|---|
| Clinical training / Theoretical and practical training | = | 122 / 268 | = 1 / 2.2 |

Population medicine and livestock production

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical training | = | 405 / 210 | = 1 / 0.51 |

| | | | |
|---|---|---|---|
| Clinical training / Theoretical and practical training | = | 64 / 551 | = 1 / 8.6 |

Food science, hygiene and public health

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical Training | = | 180 / 105 | = 1 / 0.6 |

Diversification

| | | | |
|---|---|---|---|
| Theoretical training / Practical and clinical Training | = | 150 / 90 | = 1 / 0.6 |

## 4.6: FURTHER INFORMATION ON THE CURRICULUM

The information to be provided under 4.6 should be as brief as possible (normally not more than six pages). The only aim is to provide the visiting team with a broad overview of the teaching programme, highlighting any unusual or innovative aspects.

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

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

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

Attendance to all academic activities related to courses is compulsory. However; verification of attendance is only done for practical activities (including practical work, clinical work, etc.). Usually this is done by signing on a list. In most cases, more than one unjustified failure to attend implies that the student fails to pass the course. For theoretical lectures there is no formal arrangement to verify attendance of the students.

Description of the programme

| A. | Basic subjects | Contents |
|---|---|---|
| | **Anatomy (incl. histology and embryology)** | Embryology: Germinal cells, fecundation and ontogenesis. Anatomy of the embryo and foetus. Teratology. Anatomy of muscles, bones and other locomotor structures. Circulatory system. Respiratory and digestive apparati, urogenital apparatus, endocrine glands, nervous system, sensory organs. Dissection techniques. Tissues (blood, epithelia, muscle, connective tissue, sensory organs, nervous tissue). Microscopic anatomy. Histological techniques. |
| | **Biochemistry and molecular biology** | Bioenergy. Proteins. Enzymes. Carbohydrates. Fats. Nucleotides and nucleic acids. Genetic code gene expression. Recombinant DNA. Basic biochemistry and molecular biology techniques. Metabolism and metabolic routes. Basic techniques for the evaluation of the metabolic activity. |
| | **Biology (incl. cell biology)** | The cell: structure, organelles and function. Genetic code and cell replication (mitosis and meiosis). Genetic control of cell processes. Cell transportation mechanisms. Basic microscopy techniques. Zoology. Plant Biology. |
| | **Biophysics** | Mechanics. Fluid mechanics. Electromagnetism. Sound. Light. Radiations. |
| | **Biostatistics** | Descriptive statistics. Probabilities. Statistical inference. Distributions. Hypothesis testing. |
| | **Chemistry** | Organic chemistry: alkanes, alkenes and alkynes. Alcohols. Aldehydes. Esters. Ketones. Carboxylic acids. Pyrroles and furanes. Analytic methods in organic chemistry. |
| | **Epidemiology** | Basic concepts in veterinary epidemiology. Disease transmission. Temporal and spatial evolution of diseases. Descriptive epidemiology: Measurement of disease frequency. Analytical epidemiology: Epidemiological studies, risk, association and inference. Sampling. Interpretation of diagnostic tests. Data and data management. Disease economics. Modelling. Technical basis for fighting against animal diseases. |
| | **Genetics** | Transmission and distribution of genetic material. Population genetics. Genetic expression and control. Mutations and changes in the genome. Genetic engineering. Basis for genetic diseases. Basic laboratory techniques in genetics. Information retrieval from genetic databases (Genbank, Genome maps, etc). |

| | | |
|---|---|---|
| | **Immunology** | Organisation of the immune system: cells and organs. Natural and adaptative immune response. Immunoglobulins. T-cell receptor and major histocompatibility antigens. The cytokine network. Th1/Th2 paradigm. Immunity against infectious agents: bacteria, viruses, fungus and parasites. Immune-mediated diseases. Immunodeficiencies. Immunodiagnostics. Vaccines. |
| | **Microbiology** | Introduction to microbiology. Observation of microorganisms. Bacterial nutrition. Isolation and culture of bacteria. Structure and organisation of bacterial cells. Growth and metabolism of bacterial cells. Bacterial genetics. Control mechanisms of bacteria. Virus structure and replication. Basic mycology. Pathogenicity and virulence. Systematic bacteriology, mycology and virology. Basic microbiological techniques. |
| | **Parasitology** | Parasites and parasitism. Parasite ecology. Taxonomy and life cycles of Protozoa (Sarcomastigophora, Apicomplexa, Microspora, Myxozoa, Ciliophora), Platyhelmintes (Trematoda, Eucestoda, Cotyloda), Nemathelmintes (Adenophorea, Secernentea), Arthropoda (Arachnida, Insecta). |
| | **Pathological anatomy (macroscopic & microscopic)** | Introduction to pathological anatomy. Necrosis and apoptosis. Cellular and tisular pathological deposits. Hiperemia, edema and haemorrhage. Inflammation and tissue repair. Neoplasies. Lesions of common diseases of animals. Necropsy techniques in different domestic species. Histopathological techniques. Post-mortem anatomopathological diagnosis. Internet resources for pathological anatomy. |
| | **Pharmacy and Pharmacology** | Introduction to pharmacology and pharmacy. Pharmacodynamics and pharmacokinetics (absorption, membrane transport, biotransformation, metabolism, excretion). Mechanisms of action and dosage. Interactions and adverse effects. Galenic pharmacy. Pharmacology of the vegetative and central nervous system. Anti-inflammatory drugs. Diuretics, anticoagulants, fibrinolytics and haemostatics. Pharmacology of the digestive system. Antimicrobial, antifungal, antiviral agents. Drugs for parasitic infections. Cytostatics and other antineoplasic drugs. Pharmacology of the endocrine system. |
| | **Physiology** | Physiological principles. Physiology of excitable tissues. Central nervous system and sensorial organs. Blood and haemostasis. Homeostasis. Physiology of the endocrine system. Physiology of kidneys. Physiology of reproduction. Physiology of the digestive system. Physiology of the respiratory system. Measurement of physiological parameters. |
| | **Physiopathology** | Nosology. Physiopathology: Digestive system, Respiratory apparatus, Circulatory system, genito-urinary apparatus, nervous system, endocrine system. Physiopathology of nutrition and metabolism. Clinical biopathology and haematology. |
| | **Scientific and technical information and documentation methods** | These contents are included as parts of other courses. |
| | **Toxicology (incl. environmental pollution)** | Introduction to toxicology. General toxicology. Toxic agents. Antidotes and treatments. Fungal, vegetal and animal toxics. Environmental toxicology (pesticide pollution, lead pollution, etc.) and protection. Basic techniques in toxicological analysis. |

| B. | Animal Production | Contents |
|---|---|---|
| | **Agronomy** | Agriculture and agrarian production. Basis of agronomy: soil and climate. Vegetal nutrition. Production of vegetal food. Cereals and leguminous. Prairies for animal use. Forages. Conservation of forages. |
| | **Animal behaviour (incl. behavioural disorders)** | Behaviour ontogenesis. Endocrine control of behaviour. Stress and behaviour. Maternal behaviour. Social behaviour and socializing. Sexual behaviour. Feeding behaviour. Stereotypias and other abnormal behaviours. |
| | **Animal husbandry (incl. livestock production systems)** | Basic concepts in animal production. Technical basis for: swine production, poultry production, bovine production, ovine and caprine production, rabbit production and equine production. Husbandry and management of domestic species. Milk production. Egg production. Meat production. Profitability. Carcass evaluation and classification. |
| | **Animal nutrition and feeding** | Nutrition and feeding. Proteins, fats and carbon hydrates: Digestion and metabolism. Minerals and vitamins. Nutritional evaluation of food. Nutritional needs in domestic species. Feeding for domestic species. Nutritional analytical methods. Formulation of feedstuffs. |
| | **Animal protection and welfare** | Basic concepts in welfare. Systems to evaluate well-being and discomfort/pain. Welfare in livestock production. Welfare during transport and slaughter. Legal aspects of welfare. |
| | **Environmental protection** | These contents are included as parts of other courses. |
| | **Preventive veterinary medicine (incl. health monitoring programmes)** | Objectives of preventive veterinary medicine. Biosecurity. Preventive medicine programs for cows, cattle, small ruminants, pigs, poultry and rabbits. Preventive medicine for kennels. |
| | **Reproduction (incl. artificial breeding methods)** | Physiological bases of the reproductive cycle of domestic species. Estral cycles and methods to detected heat in different species. Semen collection and artificial insemination. Oestrus synchronization. Embryo transfer. Pregnancy diagnosis. Parturition. Neonatology. |
| | **Rural economics** | Basic economic concepts. Demand and supply. Market behaviour. Costs and prices. Production costs. Macroeconomy. Economics of agrarian enterprises. Viability of agrarian enterprises. Commercialization. Agrarian policies: national, European and international. |

| C. | Clinical subjects | Contents |
|---|---|---|
| | **Anaesthetics** | Presurgery preparation of the patient. Pre-anaesthesia, tranquilization and sedation. Anticholinergics. Inhalatory and non-inhalatory anaesthesia. Monitorisation of anaesthesia. Complications and adverse reactions to anaesthesia. Anaesthetic procedures in domestic species. |
| | **Clinical examination and diagnosis and laboratory diagnostic methods** | Direct methods of clinical examination. Complementary methods. General examination. Clinical examination of: skin, digestive apparatus, respiratory apparatus, circulatory apparatus, urogenital apparatus, muscles, bones, central and peripheryc nervous system, sensory organs. Ultrasound examination. Tomography. Tests for the evaluation of digestive, hepatic, renal and pancreatic function. Tests for the evaluation of endocrine functions. Clinical haematology. Urine analysis. CSF analysis. Tracheal lavage and aspiration. Clinical microbiology, mycology, virology and parasitology. |
| | **Clinical medicine** | Non-transmissible diseases: Oral cavity diseases, digestive diseases including liver and pancreas, diseases of blood and haematopoietic organs, neurologic diseases, respiratory diseases, heart conditions, diseases of the |

| | | |
|---|---|---|
| | | urinary apparatus, endocrine diseases, diseases of muscles and bones, metabolic and nutritional diseases. Infectious and parasitic diseases of domestic animals. Clinical rotations, mobile clinic. |
| | **Diagnostic imaging** | Normal radiologic images in the healthy individual. Radiological images of most common diseases of domestic animals. Radiological images in orthopaedics. Mielography. Radioprotection. Ultrasound examination. Clinical cases (problem-solving). |
| | **Obstetrics** | Delivery disorders. Maternal and foetal dystocias. Other problems during parturition (haemorrhage,etc.). Disorders of post-partum. Metabolic diseases associated to pregnancy and lactation. Neonatology. |
| | **Reproductive disorders** | Male infertility, impotentia and loss of libido. Prostatic disorders. Pathologic anoestrus. Infertility. Endometrial, cervical, vaginal and vulval disorders. Abnormal pregnancies. Embryonic death. Foetal death. Avortion. |
| | **State veterinary medicine, zoonoses, public health and forensic medicine** | Legal and forensic medicine. Technical basis to fight against diseases. International animal trade. Animal health code. Risk analysis. |
| | **Surgery** | Surgical instrumentation. Sutures and suture technique. Surgical treatment of wounds. Skin surgery. Laparotomy. Herniae. Surgical treatment of reproductive disorders. Ovariohysterectomy and male neutering. Orthopaedic surgery. Odontological surgery. Surgery in respiratory processes. Thoracic surgery. Abdominal surgery. |
| | **Therapeutics** | Technical basis of drug dosage. Medical therapy of inflamation. Fluid and electrolite therapy. Parenteral nutrition. Antimicrobial, antifungal and antiparasitic therapy. Therapy of neoplastic processes. Systematic pharmacological therapy. |

| **D.** | **Food Hygiene** | **Contents** |
|---|---|---|
| | **Certification of food production units**<br>**Food certification**<br>**Food hygiene and food quality (incl. legislation)**<br>**Food inspection, particularly food of animal origin** | Food and food quality. Food contaminants (biotic and abiotic). Food-borne diseases. Additives. Hygienic aspects of food production, preservation and distribution. Hazard Analysis and Critical Control Points. Hygiene and bromatology of: milk and milk products, meat and meat products, eggs, fish and seafood. Food inspection and certification. Legislation. Analytical techniques. Slaughterhouse inspection. |
| | **Food science and technology** | Components of food. Food spoilage. Basic processes and operations in food technology. Preservation of foods. Cleaning and disinfection in food industries. Food technology: Milk, meat, eggs, fish and seafood, honey. Quality control of food processing. |

| **E.** | **Professional knowledge** | |
|---|---|---|
| | **Practice management** | Pre-professional practice |
| | **Professional ethics** | Deontology. Ethical veterinary code. |
| | **Veterinary certification and report writing** | These contents are split among other subjects. |
| | **Veterinary legislation** | National and EU legislation affecting the veterinary practice: Private practice, reportable diseases, welfare and animal protection, epidemics and disease control, food industries. Legal aspects of veterinary certification. |

## 4.7: SPECIFIC INFORMATION ON THE PRACTICAL CLINICAL TRAINING

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

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

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

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

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

All undergraduate students must enrol in clinical training activities comprising different specialties and accounting for 4 or 5 full weeks. For small animal and equine medicine, besides other clinical activities, students must participate in clinical rotations at the VTH. Training in large animal medicine is mainly done as a mobile clinical work. These clinical activities are organized in the so-called “modules”, namely, full one or two week periods of clinical training in groups of 4-6 students. So far, for small animals these “modules” are programmed for clinical medicine (1 full week including one nightshift and a12h week-end shift attending emergencies) and surgery (1 full-week participating in the surgery service of the VTH, plus one night and one week-end shift). For equine medicine, students must attend the activities of the Equine Unit of the VTH for 2 weeks (including two nightshifts and a 12h shift on weekends). These rotations are done between the $4^{th}$ and $5^{th}$ year of the curriculum and correspond to Surgery, Clinical Medicine and Reproduction and Obstetrics. During these rotations all students must participate also in the activities of the Intensive Care Unit.

The development of these “modules” is as follows. Each morning, teachers and students have a meeting to present, review and discuss the clinical records of the animals admitted up to then in the VTH. This meeting serves to plan the treatments or additional examinations needed for a given patient. Then, students participate in the daily programmed activities (outpatient appointments or scheduled surgeries). For

consultations, students are distributed in two or three different exploration rooms were they participate in the examination of patients. At the end of each day the students discuss with their supervisor the different cases seen all over the day.

Besides these general activities, students are expected to undertake the following tasks: to write down accurately clinical histories, to explore patients, to perform additional examinations (inspection, palpation, auscultation, X-ray, ultrasound diagnosis, etc.), to administer treatments and to follow-up treated animals. The students also participate in all pre-surgery preparation of the patients, anaesthesia, monitoring during surgery, and surgery procedures. Also, they must perform the post-surgical follow-up.

Mobile clinic activities correspond to livestock medicine. In these clinical practices, students are integrated in the normal clinical activity of a bovine veterinary practitioner who also is a part-time or full-time teacher. Students can choose to participate in the activities of two different veterinary groups (*Cooperativa Plana de Vic* or *Centre Veterinari de Tona*). They must join the regular activities of these centres. This mobile clinic is done in the Osona area (some 80 Km far from the Faculty building), one of the main livestock producing areas of Catalonia. These activities correspond to five days of work in a row or split between to weeks. This clinical work is done during the $4^{th}$ or $5^{th}$ year. Mobile clinic on porcine, poultry and rabbit medicine is done during the $4^{th}$ year through farm visits (2 days for pigs and one day for poultry and rabbit, respectively) under the supervision of part-time or full-time teachers. These hours are listed under 4.1.1, 4.1.2. and 4.1.3.

Pre-rotational clinical activities include restraining and clinical examination procedures done in propedeutics and reproduction courses (3rd year) plus some activities done in physiology such as electrocardiography (2nd year) or administration of drugs (Pharmacology, 3rd year). Starting this year, a new additional activity has been implemented. Third year students must attend three days (15 hours) of activities in a pig farm located some 35 Km from the Faculty and 10 h attending to a bovine farm located some 100 Km from the Faculty. Although activities in these farms are mainly related to animal production, management and husbandry, aspects of general clinical examination and biosecurity are included.

## 4.8: SPECIFIC INFORMATION ON THE PRACTICAL TRAINING OF FOOD HYGIENE

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| Describe arrangements for teaching in a slaughterhouse and/or in premises for the production, processing, distribution/sale or consumption of food of animal origin?<br><br>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 food area is divided among practice in the FPP owned by the university (11h), practical activities in external food industries, inspection activities in slaughterhouse and laboratory practices and case-solving in food science, food microbiology, inspection and certification. For activities in the slaughterhouse, an arrangement is signed between the Faculty and Mercarbarna, the main slaughterhouse of Barcelona (some 20 Km far from the Faculty building). Visits to the slaughterhouse are done with the participation of one teacher who is also an official food inspector. That slaughterhouse processes cattle, ovine, goats and horses. Arrangements are being made to ensure also visits to pig and poultry slaughterhouses. Each student must do two visits (4h each) in which under the supervision of the teacher must proceed to an inspection of carcasses and meat products. Number of students per visit is 10-12.

## 2. COMMENTS

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| 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.<br><br>Comment on the way the curriculum is structured and reviewed.<br><br>Comment on the major developments in the curriculum, now and in the near future.<br><br>Comment on local conditions or circumstances that might influence the ratios in 4.5. |

The current veterinary curriculum imparted at the Veterinary Faculty of the UAB distributes a 48% of the contents to basic subjects, 18% to animal production subjects, 21% to clinical subjects, 6.5% to food hygiene and food technology and 6.5% to professional knowledge skills. As stated before, in Spain, a veterinarian is competent in animal medicine and surgery, animal production, food hygiene and food technology and in public health. Within this frame, the programme is balanced and prepares fairly well the students for the challenges they will face in the exercise of the profession in our country. Notwithstanding, this wide scope of the veterinary profession and the fact that by law the veterinary curriculum in Spain is developed in five years produces an

undesirable constraint of the curriculum. This is particularly clear in the fourth and fifth year.

Regarding the structure of the curriculum, its contents and their distribution somewhat reflects the needs of the veterinary profession in late 80s and early 90s of the past century, when this curriculum was approved. Thus, the curriculum is quite traditional and has few innovative aspects.

In the last years, many changes have occurred. At an international level, food crises such as the BSE, dioxins and others as well as the emergence or re-emergence of animal pathogens (classical swine fever, foot and mouth disease, bluetongue, etc.) and zoonoses (West Nile virus, etc.) indicates that more emphasis should be put on food safety for the whole food chain, public health issues and epidemiology. Also, the small animal and exotic pet sector is becoming increasingly important and this must be reflected in the curriculum. In addition, the awareness of society in environmental issues and animal welfare suggest that concepts as sustainable livestock production, waste management and welfare in animal production must be clearly boosted. Furthermore, in the current world, management of information is critical and this must be a key issue in all university degrees. Enterprise management and more scientific skills must be developed too.

Obviously, all these objectives cannot be done without a substantial rebuilding of the structure of the curriculum. These changes will probably affect some basic subjects that are already taught in the medium education and will probably decrease their weight. Also, contents of the courses must change. In our opinion, the current separation that the Spanish law establishes within a course between theoretical lectures and practise is to be changed. More hands-on work is needed and most probably some courses may be completely practical while others may remain mainly theoretical. A positive approach would be to define only a minimum acceptable level of practical work load instead of specifying the number of theoretical and practical hours for each course.

An important setback to re-structure the curriculum is the stiffness of the legal process to perform such a change. Except for very minor issues, a modification of the curriculum is a long way with very little flexibility. This must change. However, without a modification of the law this could not be done. Hopefully, this modification is expected to occur soon since a new law draft is already prepared.

Future developments will be centred in the implementation of the Bologna Declaration. This process of European convergence should lead to major changes in the structure of the curriculum. Most significant improvements that can be made are a decrease in the number of “classroom” hours and an increase of self-learning, supervised work and practical/clinical activities. However, these changes also depend on changes in funding, new academic positions and on the legal frame that the Spanish government draw. At present, we are starting to implement the adaptation of the first year of the curriculum to the ECTS system and a deep process of reflection on the structure of the curriculum and the methodologies used is being developed.

The implementation of the Bologna Declaration will also help to alleviate a severe problem that affects performance of students. With the current curriculum, students are supposed to be present 4,200 h in five years. That means some 840 h/year. With this figure, if students dedicate a similar number of hours of work to prepare the examinations, presentations, etc., the total work load for a year is, at least, 1,680 h and, probably, more. This high workload must be decreased. This can be done by further promoting self-learning and autonomous work but also by reducing theoretical lectures.

## 3. SUGGESTIONS

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

As seen in the ratios in 4.5. some values still fall below the satisfactory level. We suggest the following actions to improve the ratios:

a) To decrease the number of theoretical lectures by transforming some of them into self-learning or supervised work activities in small groups. This goal is difficult to achieve because the approved curriculum clearly states the number of hours that must be spent in theoretical lectures. However, the University Rectorate is willing to accept such a change meanwhile the new law regulating the university degrees is not approved.

b) As observed in the figures presented in this chapter, the ratio for clinical activities must be improved. We suggest decreasing the number of non-clinical work in clinical subjects. The analysis of the effort that the academic staff devotes to

clinical activities shows that many hours are used in elective clinical subjects (122 h) while some core clinical subjects have too much “non-clinical” hours. A redistribution of this effort is necessary to ensure a higher clinical standard of students.

c) Also, there is the will to keep increasing the number of contracts with slaughterhouses, industries and farms. This will allow increasing the number of practical teaching in these areas.

# Chapter 5 - TEACHING: QUALITY AND EVALUATION

## 1. FACTUAL INFORMATION

### 5.1: THE TEACHING PROGRAMME

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|---|
| Describe the measures taken to ensure co-ordination in the teaching between different departments, sections, institutes and services.<br><br>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.<br><br>Indicate the extent to which course notes are used to supplement or substitute for the use of standard veterinary textbooks.<br><br>Describe (if applicable) any established or contractual arrangements that support undergraduate teaching between the establishment and outside bodies, e.g. farms, breeding centres, practitioners, state veterinary services, factories/processing plants, outside laboratories, etc. Briefly describe how these arrangements work out in practice in terms of the contact this provides for all students or for selected students. |

#### 5.1.1. Coordination of teaching

Coordination of teaching is done by the Commission for Teaching Affairs, the Studies Coordinator and the Vice-dean for Teaching Affairs.

According to the Faculty statutes, the Commission for Teaching Affairs (CTA) is composed by:

a) The Studies Coordinator (president of the Commission)
b) Three teachers appointed by the Faculty Council
c) Three students
d) The Head of the Academic Office
e) The Dean or the Vice-dean for Teaching Affairs

This commission designs the general lines over which teaching should develop and approves all changes or modifications in teaching. Also, it makes a follow-up of the development of each semester and proposes solutions to the problems encountered.

The Studies Coordinator is who executes the decisions of the CTA. His/her tasks also include regular meetings with representatives of the students in order to give quick answers to any problem encountered during the development of a course. He/she is also responsible for the organisation of the teaching activities of each semester. In addition, there is a specific coordinator for each year of the curriculum. These later coordinators assist the Studies Coordinator in his/her tasks.

The Vice-dean for Teaching Affairs is the highest responsible for teaching policies and is accountable of all actions in this area before the Dean, the Faculty Council and the Vice-rector for Academic Affairs. His/her tasks are to design teaching policies to be proposed to the CTA, to act as a coordinator with the heads of the Departments and to implement university policies in the teaching area.

### 5.1.2. Pedagogic approach of the institution

The pedagogic policy of the Faculty and the university is to implement and impulse learning-oriented student-centred approaches as well as to apply and develop the contents of the Bologna Declaration. Currently, about 4% of the total course hours are developed as self-learning, 4% are developed as purely computer-assisted learning, and 25 courses partially use problem-solving approaches. In addition, the faculty has also developed a virtual library of resources (*Veterinària Virtual*, http://quiro.uab.es) where students can find notes, lectures, multimedia materials and web- links to help them developing autonomous work. To allow the students full access to computer resources and Internet, the Faculty have 4 computer rooms and additional computers in the Faculty library (some 60 computers in total). At present, Faculty policy is to increase the number of public computers in the building up to a ratio of 1 computer:10 students and to fully equip the building with wireless connections to the Internet and the Faculty intranet (this is foreseen for years 2005-2006). Besides, faculty and university policies are to reduce classical magisterial lectures by increasing hands-on activities, either in computer rooms, laboratories, and farms or in clinical practice. However, this later goal is difficult to attain because of the current Spanish legal frame for veterinary studies that indicates the number of theoretical lectures that must be done. In these moments, a deep change of

this legal frame is being developed. This change will lead to a higher degree of freedom for each university that will easy the implementation of newer approaches.

### 5.1.3. Use of notes and supplemental material

As stated before, there is a virtual library (*Veterinària Virtual*) that serves as an internet depot of notes and other resources for the students. In addition, the University Press Service has also published several course notes that are used in teaching (i.e. epidemiology problems, neuroanatomy, population genetics, etc.). Access to web-based resources is free but course notes edited by the University Press Services are sold at low cost (about 10 € each). Also, there is a photocopy service where the students may find course notes produced by the teachers. Videos used in lectures are available in the library or via web.

### 5.1.4 Contractual arrangements for undergraduate teaching with outside bodies.

At present, the Faculty has contractual arrangements with one slaughterhouse (Mercabarna), with the Association of Meat Industries, with private practitioners (74) and industries (16) and with state laboratories. Most of these contracts are directed to ensure the accomplishment of the extramural work. No economic compensation is given for these agreements. However, contracts with external farms include some economic compensation.

## 5.2: THE TEACHING ENVIRONMENT

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

### 5.2.1. Development facilities

The university develops several formative actions and courses to increase teaching skills. These courses can be divided in: a) formative actions to prepare new teaching staff, b) development courses to improve teaching skills of senior teachers. For newly hired teachers, the courses are organised in four blocks: “Learning strategies”, “Course assessment”, “Didactic resources” and “Teaching portfolio preparation”. These courses are imparted by the Unit for Innovative Teaching in Higher Education (IDES) and their

contents can be seen at http://magno.uab.es/ides/form1.htm. The courses directed to senior teachers are done twice per year (February and June). The scope of these activities is to gain a deeper insight in specific areas of teaching. The type and description of courses can be seen at http://oaidm.uab.es:8181/ides/cursos/index.jsp. In addition, the Faculty also organises specific courses for teachers. In this case, the courses are mainly focused in new technologies applied to teaching. As a matter of fact, veterinary teachers account for some 10% of the total number of attendants to these courses while teaching staff of the Veterinary Faculty only accounts for 4%-5% of the total teaching staff of the university.

### 5.2.2. Reward of excellence

At present, the only reward for excellence in teaching is a system of additional economic retribution. To receive such an economic complement, teachers must pass an internal university evaluation every five years. For this evaluation, the teacher must prepare a self-report to be delivered to the university authorities. Additional reports are done by the dean and the head of the department. This system has been implemented this year (2004). For excellence in research there is a similar system of evaluation. In this later case, the evaluation is carried out every sixth year and is done by a national external agency. These two evaluations are necessary to obtain a promotion but do not grant it.

## 5.3: THE EXAMINATION SYSTEM

Describe the examination system of the establishment, particularly in relation to:

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

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

a) All major changes in the examinations for a given course must be approved by the CTA of the Faculty.

b) Students must know beforehand (at the beginning of the semester) how, when and where the examinations will be done. Any change affecting these points must be submitted for approval well in advance to the CTA.
c) All exams are subjected to the general rules of the University regarding this subject.

Table VI shows the distribution of different types of examinations.

| **Assessment Methods** | **1. Year** | **2. Year** | **3. Year** | **4. Year** | **5. Year** |
|---|---|---|---|---|---|
| **Written and multiple choice test examination** | 72% | 75% | 60% | 73% | 66.7% |
| **Assessed coursework** | 7% | 15% | 25% | 14% | 25% |
| **Laboratory experiment write-ups** | 7% | | 5% | | |
| **Essays** | | | | | 8.3% |
| **Oral examination** | 14% | 10% | 10% | 6.5% | |
| **Presentations** | | | | 6.5% | |
| **Total** | 100% | 100% | 100% | 100% | 100% |

**Table VI.** Types of examination systems and their distribution.

Periods for examinations are determined by the University Council. Usually, three periods are allowed, (1) three weeks in January-February for courses imparted during the first semester, (2) three weeks in June for second semester subjects and (3) three weeks in September for re-examination of students that did not pass their examinations in February or June. During these weeks there are no lectures. One additional week ("white week") without teaching precedes the January-February and June examination periods. No external examiners are called.

As determined in the Spanish law, one student is allowed a maximum of six retakes. Students failing to pass a course after the sixth examination are dismissed from the University. Nevertheless, under special conditions one student can ask permission to the Social Council for a final seventh retake. However, this count only considers the number of times that the student has attended the examination. Thus, if a student is not physically

present on the day of the examination that occasion does not compute for that count. As stated before, each course has a fixed day of examination.

For students failing to pass a course some restrictions apply. For instance, one newly enrolled student failing to pass a number of courses equivalent at least to 300 h in two years can only continue on probation for one additional year. If the next year fails again, is dismissed. For students passing the first year, they can engage in new courses even if some subjects were not passed. In this case, they are allowed to continue provided that they enrol again in failed courses.

### 5.4: EVALUATION OF TEACHING

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| Describe the method(s) to assess the quality of teaching used in the establishment.<br><br>Indicate whether the evaluation is an establishment procedure, or one set up by individual departments, by students or by individuals.<br><br>Describe the role of students in the evaluation of teaching and teachers.<br><br>Describe the follow-up given to the evaluation. |

There are internal and external quality assurance strategies. Internal strategies are developed by the University or the Faculty. At the University level, the OPQ (Office for Promotion of Quality) and the Vice-rector for Academic Affairs are responsible for the Quality program. This program includes a series of surveys to the students, a verification of the teaching duties and the accomplishment of the teachers and, experimentally, a survey to teachers about the students. These documents are available to faculty and to the students in the library. In addition, there is a survey on the academic performance of students (carried out each semester), available to Faculty.

At a Faculty level there are several mechanisms in quality assurance. First, each semester there are meetings with the students to discuss the development of the courses. In such meetings a detailed evaluation (according to a designed protocol) of weaknesses and strengths of each course is done. A report of these meetings is sent to the Vice-Rector for Academic Affairs.

In addition, the Veterinary Studies Coordinator has periodical meetings with the students to assess the development of the course and to ask for possible problems. Besides that, every substantial change in teaching methodologies or examination systems has to be

presented and defended before the CTA. This Commission, composed by teachers and students, has the right to refuse changes if these do not fit the programme goals or the faculty policies approved by the Faculty Council. Sessions of this Commission are open to the attendance of all members (faculty, students and administrative staff) of the Faculty. Usually, changes are initially approved subjected to probation; namely, after the first year in which the changes were applied, the Commission examines the outcome of the change and gives a final approval or rejects the proposal. Figure V summarizes the process of quality control.

External assessment of quality is done at a national level through a programme called National Plan for Quality of Universities. This plan is carried out by the MEC and the agencies for quality assurance (in Catalonia by the *Agència per la Qualitat del Sistema Universitari de Catalunya,* DURSI). In this plan, a three phase process is established for the evaluation of quality: self-assessment, external evaluation and drawing up of a final report. The Catalan Governments assumes that passing an EAEVE evaluation is enough to get the accreditation.

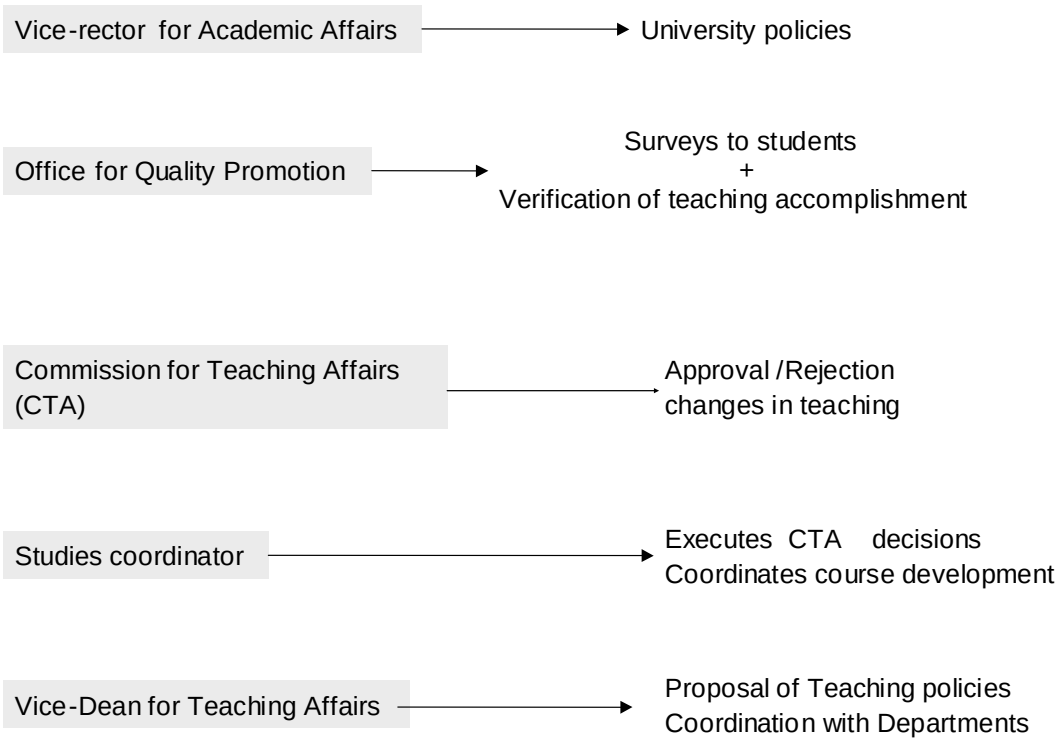


**Figure V.** Quality control process

## 5.5: STUDENT WELFARE

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|---|
| Describe the facilities (not related to the teaching programme) which the establishment provides for students (accommodation, sports, recreation, canteen, restaurant, etc.).<br><br>Describe the guidance offered by the establishment (or its parent institution) for students with problems (social problems, study problems, career development, job selection). |

### 5.5.1. Facilities

The University has an in-campus housing project that can allocate 1,790 students and provides off campus rooms and apartments through a series of agreements with private owners (see details at http://www.vilauniversitaria.com). Also, the university has a Sport Service (SAF) with facilities for the practice of sports. These facilities include a multi-use pavilion, football, hall-football, rugby and American football courts, two swimming pools, plus agreements with off-university institutions for sailing, windsurf and other activities. These facilities are available to all university community for a fee of 49.98 €/trimestre (see details at: http://www.blues.uab.es/~ssaf24). Other facilities for recreation are a cinema, a theatre (http://www.blues.uab.es/cultura), an auditorium and a symphonic orchestra. The university also has a commercial area (called *Plaça Cívica,* five minutes walking from the Faculty building) with shops, a bar and a restaurant. A whole building (*Edifici d'Estudiants*), located in the *Plaça Cívica* provides a place to meet for student associations (details can be seen at: http://magno.uab.es/vr-estudiants/edi/edifici.htm) and for non-academic activities produced by students. UAB students are organised in 59 different associations (16 political, 13 cultural, 7 social volunteering, 7 sports and 18 professional). These associations use the *Edifici d'Estudiants*, except those belonging to the Veterinary Faculty that has their own room in the Faculty building. These associations are: IVSA (Barcelona's branch of the international veterinary student association), Vetermon (allied with "Vétérinaires Sans Frontières"), ACHV (Catalan Association for Veterinary History), AVAFES (Veterinary Students for Exotic Animals and Wildlife), BADA (a charity for small animals protection), GEAC (students friends of horses) and Keté (Veterinary Students for Marine Mammals).

Regarding other facilities, the Faculty has its own canteen and restaurant (remodelled during summer 2004) and a room with 102 places for study. (See chapter 6 for more details)

### 5.5.2. Guidance

In the Veterinary Faculty each student has a teacher who acts as advisor. The advisor gives personalized advice regarding problems affecting academic performance. Also, there is a programme in which four-year and five-year students act as advisors of newly enrolled students to help them to familiarise with the university and the faculty. For students with disabilities there is a university programme giving personalised support. Details of this programme can be seen at: http://magno.uab.es/fas/fas/04piune.htm. The University also provides health care, including a service for emergencies and general medicine, gynaecology, sports medicine, odontology and psychological counselling. A special office for psychopedagogic counselling is open to all students with study problems. For students with social or economical problems, the University has a special unit (*Autònoma Solidària*, http://magno.uab.es/fas) that can give support to those students in need. This unit also participates in social and international cooperation programmes. For those students in need of a job, the university has a Unit that gives help (efficient writing of curriculum vitae, etc.) and acts as an employment office (http://web.udg.es/ciae/borsa/que_es.htm). The university also has a bursary programme for students that wish to collaborate with university services (libraries, SAF, etc.). Assistance and support for those students with religious creeds is provided by SAFOR (roman catholic, http://magno.uab.es/safor) and there is a special hall in the Students' building for religious activities of Muslims, Jews and other creeds.

## 2. COMMENTS

During the last years, quality of the teaching programme has improved. Main advances were an efficient organization and design of the semesters, a very high level of accomplishment of teaching duties and learning objectives, a strict control of all aspects of teaching and an active participation of students. However, there are several aspects that should be changed to further improve. First, there is an urgent need for a change in the curriculum, probably not in terms of contents, but in distribution of those contents and in teaching methodologies.

Second, autonomous work of students should be further promoted. The number of hours dedicated to oral presentations is still scarce and thus, communication skills are not developed as deeply as needed. The number of written examinations, particularly test or multiple choice exams is excessive compared to continuous evaluation or other types of examination. This also impoverishes communication skills.

Third, accumulation of exams in three periods tires the students and lead to the vision that the exams are an end instead to be perceived as a mean. Also, this system somewhat rewards memory, that is an important component of learning, and penalizes other skills. The number of retakes is too high and unjustified except in exceptional cases. Nevertheless, this late point cannot be changed without changing the university regulations.

Fourth, rewards for excellence in teaching are scarce and this do not stimulate teachers to improve or, even worst, discourage good teachers because their efforts beyond the normal duty are not rewarded.

Regarding external examiners, their contribution could be valuable because they can introduce a vision of the skills needed for the daily work of a “normal” veterinarian. However, under the existing regulations, these external examiners could only act as consultants and, in no case they could decide whether or not a given student can pass a course.

As stated above, students actively participate in the monitoring of courses through periodic meetings with teachers and the Studies Coordinator. Nevertheless, this participation should increase in order that more feed-back can be included in changes. Also, any curriculum changes must include by law the participation of students. However, because of the changing nature of the student population is difficult to create a dynamic participation of students.

## 3. SUGGESTIONS

A series of actions are to be done to improve the examination system. Briefly:

a) To increase the number of oral examinations, presentations and hands-on examinations.

b) To implement continuous evaluation activities. This is already being done and in the next years, most probably the fixed periods of examination will disappear.

Quality of teaching should be improved in several aspects. To meet this goal, we suggest:

a) To increase the rewards (in terms of salaries, promotions or sabbatical leaves) for teachers with good teaching qualifications. This will further increase motivation and will encourage those with lower marks. This is up to the university.

b) To develop more formative programmes for teachers, including new methodologies of teaching/learning. We recently reach an agreement with university authorities to prepare specific courses for teachers of the Veterinary Faculty.

c) To increase contacts with external bodies in order to adjust the teaching contents and methodologies to social and professional needs. An advisory council with participation of faculty, professional colleges, private practitioners, industries, etc. will help to this end.

d) To decrease the number of theoretical lectures by proportionally increasing the number of practical/clinical, self-learning and autonomous work activities. This can only be done through a major change in the legal frame. This change is expected to occur next years since a new law draft is about to be discussed in the parliament.

e) To further increase the use of note courses and web available resources in order to increase management of information skills. An active campaign is being done in this sense.

# Chapter 6 - FACILITIES AND EQUIPMENT

## 1. FACTUAL INFORMATION

### 6.1. PREMISES IN GENERAL

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

The main building and the other facilities of the Veterinary Faculty are mainly located in the campus of the UAB in a semi-rural area about 20 km far from Barcelona. The campus is connected with downtown Barcelona and other main cities of the area by means of shuttle trains and buses that operate every 10-20 minutes.

The Veterinary Faculty is composed by the main building and several annex buildings and facilities (VTH, farms, food processing plant, etc.)(see map 1).

The main building, of about 7,000 $m^2$, is divided in three different blocks connected by several in-door corridors through the courtyard. Block “A” is a four-storey building that mainly accommodates the offices for teachers, the research and teaching laboratories (including the dissection, microscope and food hygiene laboratories), the faculty administration, the Dean’s office, two meeting rooms and the four computer rooms. The block “B” has two floors and accommodates the lecture rooms, the restaurant and other facilities (photocopy service, students associations room, staff common room and student multi-purpose rooms). Block “C" accommodates the library and two school halls (the larger one for 300 people and the smaller one for 75 people).

Close to the main building, additional buildings and facilities are grouped in three different areas: VTH, farm-animal facilities and food processing plant.

The VTH, of about 1,500 $m^2$, is partitioned in two zones, one for small animals and the other one for large animal. The small-animal unit is connected directly with the third floor of the main building and accommodates one well-equipped surgical theatre with a recording video system that transfer the surgical images to two TV-screens placed inside the theatre, three mid-equipped additional surgical theatres, one surgical store and the pre-operative room. All those facilities are connected by means of an internal corridor. The hospital also have an intensive care room, five exploration rooms, an emergency laboratory, one staff office, a digital x-rays room, a waiting area and a

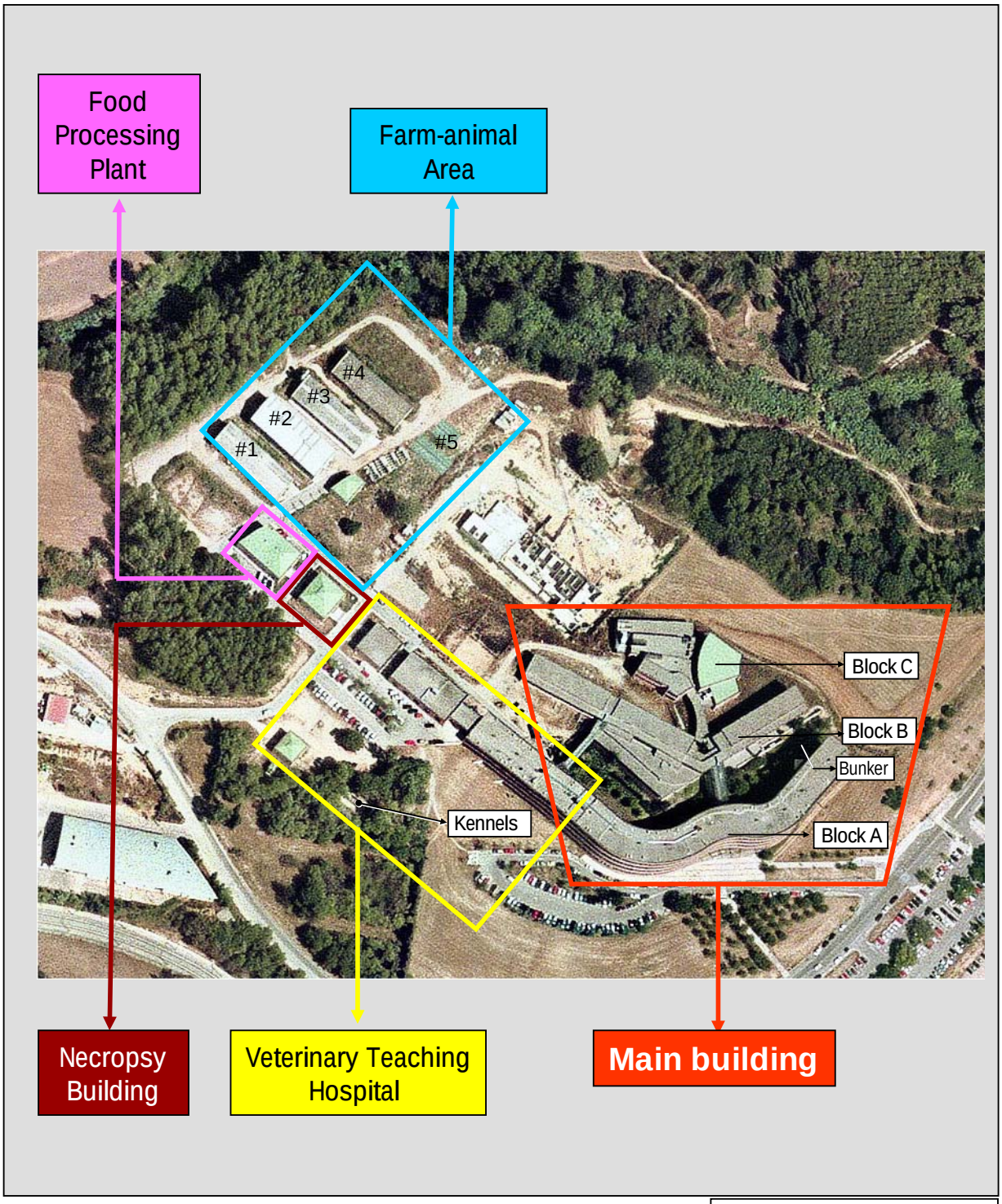
reception desk facing the main entrance of the VTH. All those facilities are placed along the main corridor of the building. Other small animal hospital facilities include a computer tomography scan and ultrasound rooms, as well as dressing, leisure, dinner rooms and a bedroom. The large animal area is mainly dedicated to horse medicine and surgery and includes a large surgical theatre with induction and recovery rooms, several exploration rooms and a x-rays scintigraphy room. The hospital area is completed with a store building and the stable building for horses.

The VTH is surrounded by the necropsy building (for both small and large animals) and kennels.

The farm complex consists of 4 barns of about 480 $m^2$ each and two smaller ones. Barn #1 accommodates cattle, goats, hens, broilers, piglets and a digestibility room. Barn #2 is dedicated to offices and is also used as storehouse for feedstuff and forages. Barn #3 accommodates ewes and sheep. Barn #4 has the examination rooms, one small laboratory, experimental pens for pigs, and stables for horses, donkeys and pigs. Finally, there are two smaller barns dedicated exclusively to lambs (#5). Several outdoor housing fenced areas complete the farm facilities.

The last area of the Veterinary Faculty is the Food Processing Plant (FPP), a well-equipped building of about 500 $m^2$ distributed in two levels, placed in between the farm and the hospital areas.

# Facilities of the Veterinary Faculty of Barcelona




Aerial picture took on July 2002

**Map 1**. Veterinary Faculty facilities.

## 6.2: PREMISES USED FOR CLINICS AND HOSPITALISATION

Table 6.2.1: **Places available for clinics and hospitalisation**

| | |
|---|---|
| - number of hospitalisation places for cattle | none [(1)] |
| - number of hospitalisation places for horses | 14 |
| - number of hospitalisation places for small ruminants | none [(1)] |
| - number of hospitalisation places for pigs | none [(1)] |
| - number of hospitalisation places for dogs | 12 |
| - number of hospitalisation places for cats | 8 |

Number of animals that can be accommodated in isolation facilities;

| | |
|---|---|
| - small animals | 5 |
| - farm animals and horses | 6 |

[(1)] The clinical training for cattle, pigs and small ruminants is not performed at the facilities of the Veterinary Faculty but as a mobile clinic. So, no available hospitalisation places are dedicated to those species. Nevertheless, the students receive additional clinical training when research animals (small ruminants and cattle) need treatment.

## 6.3: PREMISES FOR ANIMALS

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

The Veterinary Faculty owns a kennel of about 175 $m^2$ placed at the hospital area. The kennel has 16 partially-covered boxes of about 5 $m^2$ each one and a small storehouse. Six beagle dogs are always available for teaching several non-invasive methods related to clinical matters (physical exploration, ophthalmology, etc.).

Two mares and 15 donkeys are full-time available at the VTH and farm complex for teaching purposes in reproduction and propedeutics. Regarding the farm animals, the veterinary faculty has 4 cows and 220 sheep used for teaching. In addition to those farm animals, the Veterinary Faculty has agreements with two outdoors farms and companies, whose practitioners are in fact part-time teachers (associate teachers), to assure an *in-situ* clinical and production training.

## 6.4: PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

Table 6.4.1: **Premises for lecturing**

Number of lecture halls **7**

Number of places per lecture hall

| Hall | no. 1 | no. 2 | no. 3 | no. 4 | no. 5 | no. 6 | no. 7 |
|---|---|---|---|---|---|---|---|
| Places | 130 | 130 | 100 | 100 | 100 | 100 | 100 |
| Room nº * | 1 | 3 | 11 | 12 | 13 | 14 | 15 |

Total number of places in lecture halls **760**

* Room nº displayed at the Veterinary Faculty Facilities

Table 6.4.2: **Premises for group work**

| Room | no. 1 | no. 2 | no. 3 | no. 4 | no. 5 | no. 6 | no. 7 | no. 8 |
|---|---|---|---|---|---|---|---|---|
| Places | 70 | 30 | 20 | 50 | 50 | 50 | 50 | 50 |
| Room nº | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

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

| Room | no. 9 | no. 10 | no. 11 | no. 12 |
|---|---|---|---|---|
| Places | 24 | 24 | 24 | 30 |
| Room nº | V0-366 | V0-215 | V0-171 | V1-201 |

Total number of places in rooms for group work **472**

Number of rooms that can be used for group work (autonomous work) **4**

Number of places in the rooms for group work:

| Room | no. 1 | no. 2 | no. 3 | no. 4 |
|---|---|---|---|---|
| Places | 102 | 5 | 5 | 5 |
| Room nº | V1-103 | V2-001a | V2-001b | V2-001c |

Total number of places in additional rooms for autonomous work **117**

Table 6.4.3: **Premises for practical work**

Number of laboratories for practical work by students **22**

Number of places per laboratory:

| Room | no. 1 | no. 2 | no. 3 | no. 4 | no. 5 | no. 6 | no. 7 | no. 8 |
|---|---|---|---|---|---|---|---|---|
| Places[1] | 50 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Room nº | V0-055 | V0-356 | V0-003 | V0-225 | V0-226 | V0-114 | V0-135 | V0-355 |

Number of places per laboratory (continued):

| Room | no. 9 | no. 10 | no. 11 | no. 12 | no. 13 | no. 14 | no. 15 | no. 16 |
|---|---|---|---|---|---|---|---|---|
| Places[1] | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Room nº | V0-260 | V0-231 | V0-352a | V0-120 | V0-147 | V0-243 | V0-207 | V0-211b |

Number of places per laboratory (continued):

| Room | no. 17 | no. 18 | no. 19 | no. 20 | no. 21 | no. 22 |
|---|---|---|---|---|---|---|
| Places[1] | 25 | 25 | 25 | 15 | 12 | 6 |
| Room nº | V0-211a | V0-352b | V0-160 | V0-323 | V6-001 | V0-283 |

Total number of places in laboratories: **533**

Practical work is also performed in the following facilities:

Number of places per laboratory (continued):

| Room | Places |
|---|---|
| Two surgical theatres | 8 |
| Large animal exploration room | 12[1] |
| Necropsy room | 12[1] |
| Farm exploration room | 12[1] |

Total number of places in those rooms: **44**

[1] The table shows the scheduled number of students per practice in each laboratory although the real capacity of the room is higher

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

The main corridors where the laboratories are located are all equipped with automatic fire extinguishers, water hoses and anti-fire doors. Also, there are several emergency showers. At the inner side of the laboratory doors there is a list of trained first-aid people that can be called if an emergency occurs. Inside the laboratories, eyewash emergency units are also available. When needed, gloves and masks are provided to the students. Routinely, students are informed of the basic safety procedures suitable in each practical work. Use of working clothes is mandatory in the laboratories, dissection room, farms, etc. The dissection room has an aspiration system, placed at each dissection table that removes formaldehyde and other toxic gasses. Entrance to the necropsy room can be done only after registration by signing an appropriate form. Inside the necropsy room, standard measures of biosafety are compulsory: working clothes, boots, etc. Boots must be disinfected before leaving the necropsy room. In addition, all ruminants to be necropsied are previously tested for prions in the facilities of *Priocat*, the official centre for diagnosis of prionic diseases that is located in the Faculty area. In microbiology and infectious diseases laboratories level 2 biosafety measures are applied and when needed, work is done in a flow hood. In case of an accident on the Faculty premises there is an emergency service provided by the University. Injured people can be treated by the medical services of the university and, if necessary, evacuated to the nearest hospital (some 5 Km from the Faculty).

Every incident must be informed to the rectorate and is investigated to determine possible causes and responsibilities. There is a special office (OSHA) of the university to identify possible risks. This office makes regular inspections of buildings and activities.

## 6.5: DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

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

The Veterinary faculty has several specialized services. Those laboratories provide service to the Faculty, the VTH, and other university faculties and to external veterinarians and private companies. The current diagnostic services are:

a) Veterinary Clinical Biochemistry Service (S3): Performs all kind of biochemical analysis for small and large animals, including metabolites, enzymes, ions, hormones, etc. It is fully equipped with a biochemistry analyzer (Olympus AU400), automated system for protein electrophoresis, flame photometer, ELISA reader and the complementary equipment required. The permanent staff is formed by three people, two of them veterinarians.

b) Haematology Diagnostic Service (S3): is operated by five veterinarians and one technician. The laboratory performs whole blood, urine, peritoneal fluid, pleural fluid, pericardial fluid, cerebro-spinal fluid, bronchoalveolar lavages, and synovial fluid analysis as well as coagulation panel. In addition to the basic laboratory equipment, the diagnostic laboratory has an automated haematologic analyzer (laser technology), electrophoretic equipment, spectrophotometer and a coagulometer.

c) Veterinary Diagnostic Laboratory for Infectious Diseases (S3): It provides diagnostic support in the field of infectious diseases, mainly in livestock diseases. The laboratory has all basic equipment to perform routine tasks of diagnosis (flow hoods, ELISA reader and washer, PCR equipment, etc.). Total number of personnel collaborating with the service is 10 people.

d) Bacteriology and Mycology Laboratory: Provides essential laboratory services in bacteriology and mycology, quality control and research and development. It is specialised in small animal microbiology and feedstuff analysis. Currently, services are provided by a team of five people.

e) Parasitic Diseases Diagnostic Service: Composed by five people offers service for the diagnosis of parasitic diseases. It has all the basic equipment (microscopes, PCR equipment, etc.) needed in parasitological diagnosis.

f) Veterinary Pathology Diagnostic Service (S3): It performs pathological diagnostic work based on biopsy and cytology, as well as necropsy plus histopathological studies. Special stains, immunohistochemistry and *in situ* hybridization techniques are routinely used to complete histopathological studies. Moreover, gross and microscopic evaluations of clinical studies to test pharmaceutical or biological products are performed. The service is composed

by 9 pathologists with different specialities and strong general pathology background, four technicians and one secretary.

g) Equine Reproduction Service (S3): Offers assistance for reproductive problems of equines. There are four people involved in this service.

h) Genetic Diagnostic Service (S3): This service provides support in the fields of identification of genetic diseases (porcine stress syndrome, etc.), genealogy certification, avian sexing, etc. It is composed by 5 people and has state of the art equipment.

i) Fish Diseases Diagnostic Service (S3): Offers its services to individuals (farmers, veterinarians, biologists and related professionals), companies and public institutions involved in aquaculture activities, ornamental fish trade or wildlife management. These include routine analytical work related to fish health diagnosis and consultancy on fish health and related fields. The permanent staff is formed by two specialists and two part–time technicians.

In addition to these services, the VTH has a quick diagnosis laboratory to perform basic haematology, blood biochemistry, cytology and identification of external parasites for off-service hours.

Besides these services, the Faculty also offers other services, not specifically diagnostic:

j) Wildlife Veterinary Service (S3)
k) Drug Analysis Service (S3)
l) Food Control, Inspection and Hygiene Service (S3)
m) Microarrays and DNA Sequentiation Service (S3)
n) Monogastric Animals Nutrition Service (S3)
*o)* Ruminal Digestion and Fermentation Service *(S3)*

There also a private company (UNIVET) dedicated to the diagnosis of allergic diseases in dogs and cats that is a spin-off of the Veterinary Faculty.

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

The VTH have the following clinical units:

a) Small Animal unit:
   - Internal medicine
   - Anaesthesia
   - Soft Tissue Surgery
   - Orthopaedic surgery
   - Ophthalmology
   - Neurology
   - Dermatology
   - Diagnostic imaging
   - Behavioural disorders
   - Exotic pet medicine

b) Equine unit:
   - Internal medicine
   - Surgery
   - Anaesthesia

Each clinical service appoints a head of the service (a full-time teacher) and includes several members: teachers, residents, veterinary staff of the VTH and postgraduated students.

The total number of people enrolled in the hospital is 61: 36 veterinarians (22 teachers, 8 residents and 6 full-time hired veterinarians), 6 veterinary technicians and 5 administrative people. The director and vice-director are veterinarians. The internship program includes 14 graduate students (9 in the small animal unit and 5 in the equine unit) that spend 18 months in clinical rotations among the different services. Interns collaborate in all the clinical procedures under the supervision of senior veterinarians. They also enter the after-hours emergency service.

## 6.6: SLAUGHTERHOUSE FACILITIES

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

Mercabarna is the main slaughterhouse which the Faculty has a permanent agreement with. It is placed in the Barcelona area about 30 km far from the Veterinary Faculty. This slaughterhouse is the most important one in Southern Europe and receives bovine, ovine, goats and horses. Facilities of the slaughterhouse occupy a surface of 40,200 $m^2$ of which 9,160 $m^2$ are awaiting areas, 22,000 $m^2$ are refrigeration areas and 1,200 $m^2$ are dedicated to sales. The total amount of commercialised meat is about 22,000 metric tones per year. Thirty one meat industries are connected with the slaughterhouse in the surrounding area. The agreement conditions with this slaughterhouse include the attendance of the students to all the sacrifice and inspection processes. This is a mandatory practice linked to the Food Hygiene and Inspection course.

The Faculty also has an agreement with the Health Department of the Catalonian Government allowing veterinary students to spend one month and a half in one of the regional slaughterhouses. This stage is included in the extramural work. Slaughterhouses available through this agreement may change from year to year depending on the availability of veterinary inspectors and the geographical preferences of the students. Once the location of the slaughterhouses is agreed (every May), a list is displayed in the Faculty notice board. Under the above-mentioned agreement, the Faculty is able to offer a mean of 15 slaughterhouses per year.

## 6.7: FOODSTUFF PROCESSING UNIT

**Food Processing Unit**

The Veterinary Faculty has its own Food Processing Plant (FPP), placed between the hospital and the farm complex. The FPP is located in a 500 $m^2$ building and started to operate in 1987. Nowadays the FPP is considered the Research Centre in Food Technology (CERPTA) of the UAB. It is equipped with a the complete machinery of a dairy industry including a pasteurizer, facilities to produce cheese, a tetra-brik packaging machine, etc. This unit is recognised by the Health Department of the

Catalan Government as a food industry and commercialises its products. These facilities are also used for research and development collaborations with food industries.

The curricular subjects that include practical activities taught in the processing plant are: Food Technology (core subject, 3rd year), Meat Science and Technology (elective) and Milk Science and Technology (elective).

### 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.

Regarding carcasses, organs and cadavers coming from the hospital, dissection and surgery laboratories, necropsy service, etc., a specialised external waste treatment company comes on demand to take away all this material to an incineration plant. A refrigerated room is available in the necropsy building to store viscera and cadavers. Freezers are available for the interim storage of carcasses and viscera. Tissues or organs suspected to contain prions are only processed in Priocat (the official diagnostic laboratory for prionic diseases) and are disposed in specific sealed containers that are collected by a public company that proceeds to their destruction according to EU standards. Microbiological cultures or small pieces of tissues or organs used in microbiological diagnosis have to be autoclaved (121°C, 20 min) before disposal.

The Faculty also owns a bunker (see map 1), out of the main building, for storage of toxic and other hazardous waste. This bunker has four different rooms: 1) Biohazardous and cytostatic substances, 12 $m^2$ approx., with an air extraction system, 2) Flammables (9$m^2$) with wall and doors accomplishing with safety standards permitting 120 minutes of resistance to fire, 3) Corrosives (12$m^2$), with two separated areas and two separated tanks under the floor to avoid contact in case of leakage; 4) Toxics (10 $m^2$). All rooms have an area for big containers and other area with shelves for little ones. Laboratories producing waste are responsible for transport of dangerous substances to the bunker (this is allowed to authorized personal only accomplishing with Spanish safety standards). Ecocat (a public company authorized to manage such waste) comes once a month to pick up these residues. Sewage from farms is ecologically treated and further used to fertilize fields.

## 6.9: FUTURE CHANGES

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

The main changes that will take place in the next future and which will improve teaching and research in the Veterinary Faculty are related to the construction of new facilities (see map 2). These projects are the following:

a) New Necropsy Building. This building will be placed close to the Research Centre for Animal Health (CReSA) and will be finished about September 2005. This new facility will allow performing a greater number of necropsies. The new and updated equipment and resources, will assure a better teaching quality of the necropsy procedures. Biosafety will also improve with the new facilities.

b) Veterinary Teaching Hospital. This building will be linked with the current facilities. At present, clinical load in the VTH, especially regarding the small animal unit, can not be managed properly in the current facilities due to space limitations. With the hospital enlargement, the increase in the number and size of the exploration rooms and surgical theatres would allow decreasing the number of students per clinical case and will facilitate the proper management of the increase number of clinical cases. The works for this building will start on September 2005.

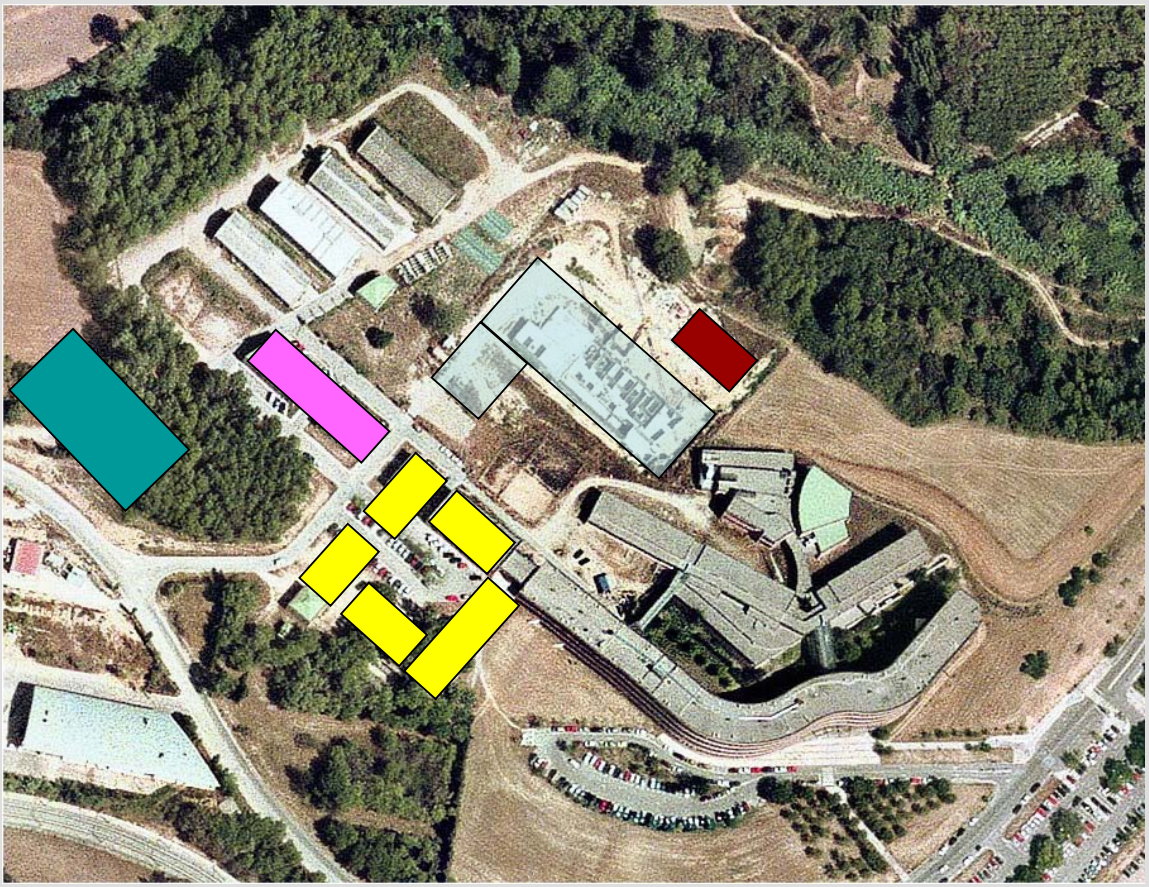
c) Kennels. The new kennels will provide enhanced accommodation for dogs allowing an increasing number of animals for teaching and research purposes. Construction of this facility is subjected to the starting of works at the VTH

d) Food Processing Plant. The project for this plant considers the extension of the current facilities and the improvement of the quantity and quality of the equipment. The new food processing plant will allow the students to learn additional techniques to produce and transform food products. The project is been planned.

e) Rabbit Production and Research Unit. This new building placed in the farm complex will have rabbit-housing for research and teaching. With this facility, an approach to the rabbit production science will be easily available to the students. Although the final

project is already accepted and budgeted there is not a definitive starting date for the works.

## Projected areas for new buildings




**Map2**. Future changes in the Veterinary Faculty facilities.

Regarding facilities, the following strengths and weaknesses are recognised:

a) Strengths

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

b) Weaknesses

- Inadequacy of the available space in the VTH (crowded consultation rooms, accumulation of students working in different clinical cases in the same facilities, waiting time for using some equipment, i.e. x-rays, etc.)
- Outdated necropsy room (small building, old facilities, suboptimal teaching conditions, etc.)
- Some laboratories need remodelling.
- Insufficient number of well-equipped rooms for unsupervised work for the students
- Restaurant facilities limited in space considering the whole number of customers and the fact that most of them must remain in the Faculty from 9 AM to 7 PM.
- Parking facilities are quite limited, especially in the VTH area. Not enough space for staff and customers.

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

a) Strengths

- Updated and complete audiovisual facilities in all the teaching rooms.
- Availability of an intranet network for the exchange of information between teachers and students (notes, power point presentations, etc.) completely accessible from all the teaching rooms, computer rooms and from home.

- Audiovisual facilities (recording video-cameras, video capture-systems, slide-scanning equipments, etc.) and specialized support to promote video-digital teaching.
- Modern clinical equipment at the VTH.

b) Weaknesses

- The equipment of laboratories for practical work is not always updated and frequently the same equipment is used for both teaching and research purposes. Renewal of these equipments is needed.

| Comment on the maintenance of buildings and equipment. |
|---|

In the last years, an important amount of economical resources has been invested to provide comfortable working conditions. The region in which the Veterinary Faculty is located and the characteristics of the building lead to very high indoor temperatures during summer. This problem was partially solved last year with a potent air conditioner system but maintenance costs are high and some investments must be prepared for its replacement in the future. However, because of funding shortages not all facilities of the main building (i.e. lecture rooms, restaurant, school halls, etc.) are adequately conditioned. This has to be solved.

A second problem arises with the maintenance of the digital equipment of classrooms. This equipment (video projector and computers) has to be replaced often because of the quick advance of the digital technology. Although all classrooms have video-computer systems, approximately only half of them have the last generation digital equipment.

Finally, funding for practical teaching is scarce and though the University establishes an annual financial support program for replacing old practical material, the amount of these grants is usually very limited.

## 3. SUGGESTIONS

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

a) Buildings and facilities

Taking into account that the building of the new necropsy room and the enlargement of the VTH are in progress, priorities for the next years are:

1. - Remodelling of some lecture rooms to allow more supervised or unsupervised work in small groups.
2. - Optimization of laboratories in terms of space distribution and allocation.
3. - Enlargement of the restaurant
4. - Increase of the number of parking places

b) Equipment

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

1. - Renewal and increase of equipment in laboratories and clinical consultations.
2. - Installation of a wireless network system and increase the ratio of publicly available computers up to 1 every ten students.
3. - Installation of the air-conditioning system in all dependences.
4. - To renew the video-computer system in all teaching rooms

# Chapter 7 - ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

## 1. FACTUAL INFORMATION

In 1994, the UAB set up an Institutional Animal Care and Use Committee (IACUC), with the main duty of overseeing all scientific and teaching procedures using live vertebrates. The IACUC is currently made up by nine members, including four scientists –three of them veterinarians- with expertise on animal welfare. The IACUC has to approve any procedure using live animals or samples from vertebrates before the procedure can be carried out. The IACUC uses the 3 R's principle as a framework to assess the ethical acceptability of a procedure.

The Veterinary Faculty has been particularly active in the field of animal welfare. It was the first Faculty on campus to voluntarily submit all its teaching procedures -when animals or samples from animals were used- to the IACUC for approval. First-year students are given a presentation on the IACUC and the Catalan legislation on the protection of animals used in scientific procedure on their first day at the Faculty. The IACUC is also responsible for safeguarding the welfare of the animals kept in any of the Veterinary Faculty premises and does so by regular inspections.

### 7.1: BASIC SUBJECTS

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

In practical teaching of anatomy, bones, viscera and cadavers are used. Viscera of different species are obtained from slaughterhouses. Some specimens may remain for several years stored in containers of preserving solution. However, we are increasingly using plastination to preserve viscera and other anatomical preparations. This technique allows to obtain durable specimens and avoids the toxic effects of formaldehyde. The Anatomy Unit already has a complete collection of bones and skeletons of the different domestic species. This collection is stored next to the dissection room.

In practical training, cadavers of dogs (30 every semester) and some cadavers of sheep are used. Dog cadavers come from different kennels which give up dogs killed because of humanitarian reasons. The cadavers of sheep are rejected animals from the Faculty farm. The cadavers are injected with preserving solutions and stored in a refrigerated chamber.

**Pathology**

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

| | species | Number of necropsies | | |
|---|---|---|---|---|
| | | **2003** | **2002** | **2001** |
| **Farm/large** | **Cattle** | 12 | 6 | 6 |
| | **Equines** | 62 | 26 | 23 |
| | **Small ruminants** | 21 | 21 | 50 |
| | **Pigs** | 191 | 213 | 186 |
| | **Rabbits/poultry** | 80 | 99 | 45 |
| **Small/pets** | **Dogs** | 251 | 231 | 267 |
| | **Cats** | 64 | 62 | 62 |
| | **Other pets** | 44 | 52 | 46 |

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.

There are no additional sources of material for teaching of necropsies and pathological anatomy.

Laboratory rats are used in practical teaching of some basic subjects such as pharmacology or physiology. Rats are obtained from the breeding facilities of the university. In order to minimise the number of animals, livers of those rats are used in practical teaching of biochemistry. Dogs from our own kennel are also employed in teaching in non-invasive procedures (for example, electrocardiography, etc.).

## 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) On the Faculty farm the following production animals are permanently available:

- Cows (4)
- Steers (4)
- Sheep (220 of which 130 ewes and 90 meat sheep)
- Goats (45)
- Donkeys (15)
- Mares (2)

Most often there are also available:

- Pigs (120)
- Poultry (432)

However, since no sows or hens are raised, availability of those pigs and poultry depends on the purchase of such animals.

b) The Faculty has access by contract to two external farms where all students do practical work with dairy cows (SEMEGA-IRTA, Monells) and pigs ("Sus scrofa", La Garriga). The first farm has 80 milking cows and 40 heifers and the second 220 sows and 800 piglets of different ages (see Map 3).

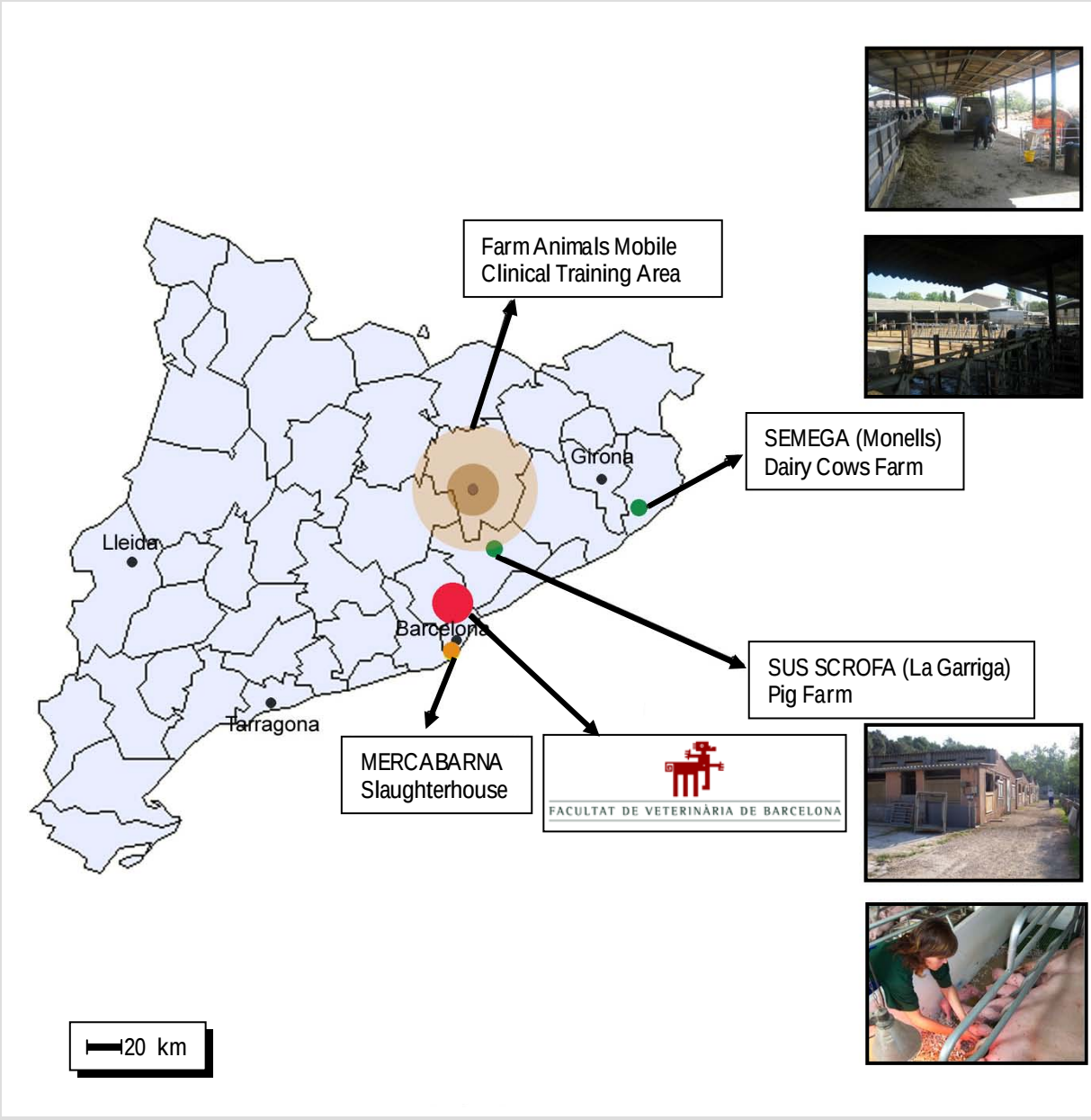
c) Moreover, students do clinical practice with livestock animals with two veterinary teams (Cooperativa Plana de Vic and Centre Veterinari de Tona) that work with cattle and swine and with two private practitioners who work with rabbits and poultry. Number of cases seen per day of work is about 7-8 (see Map 3). These animals have not been taken into account to calculate the ratios in 7.10.1.

**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. |

The practical food inspection teaching is done at Mercabarna, the slaughterhouse that processes cattle, ovine, goats and horses (see Map 3). In other practical teaching in food hygiene, meat products and fishes are used. In food technology, milk, meat, fishes and eggs are used for teaching. All these products are bought from commercial sources.

# External training facilities of the Veterinary Faculty of Barcelona




**Map 3.** External training facilities.

## 7.4: CONSULTATIONS

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

The VTH is open 24 hours a day all over the year.

Consultations are open from Monday to Friday for appointments.

The current time schedule for consultations is from 10 AM to 8 PM (detailed timetable – Table VII- for each service is shown below). The rest of the day and on weekends there is emergency attendance (24 h/day).

| **Small animals** | |
|---|---|
| **Internal Medicine** | Mon. to Fri. 10 AM to 2 PM and 4 PM to 8 PM |
| **Exotic pets** | Tues. & Thurs. 4 PM to 7 PM |
| **Behav. disorders** | Mon.3 PM to 5 PM, Wed. 10 AM to 12 AM, Fri. 5 PM to 7 PM |
| **Odontology** | Tues. 9 AM to 10 AM |
| **Neurology** | Tues. & Thurs.10 AM to 1 PM, Wed. 4 PM to 7.30 PM |
| **Dermatology** | Mon. & Fri. 3 PM to 7 PM, Tues. 9 AM to 1 PM |
| **Orthopaedics** | Mon. & Wed. 3 PM to 6 PM |
| **Ophthalmology** | Mon.10 AM to 1 PM, Tues. & Thurs. 4 PM to 7.30 PM |
| **Reproduction** | Mon. 9 AM to 11 AM, Wed. 3 PM to 5 PM, Fri. 9 AM to 11AM |
| **Surgery** | Mon. to Fri. from 9 AM until needed. |
| **Anaesthesia** | Mon. to Fri. from 9 AM until needed. |
| **Equines** | Equine unit receives referral cases on a 24 h a day basis. |

**Table VII.** Timetable for VTH services.

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

| Species | | Number of patients | | |
|---|---|---|---|---|
| | | **2003** | **2002** | **2001** |
| **Farm/large animals** | cattle* | none | none | none |
| | equines | 498 | 425 | 408 |
| | small ruminants* | none | none | none |
| | pigs* | none | none | none |
| | other farm animals* | none | none | none |
| **Small/pets** | dogs | 7515 | 7212 | 6721 |
| | cats | 4372 | 4203 | 3918 |
| | other pets | 625 | 597 | 561 |

* Mobile clinic. Currently there are no plans to have consultations or hospitalisation for pigs or ruminants. Reasons for that lie in two facts. First, because of the intensive production system for these two species, particularly swine, very few individual diagnosis or treatments are done outside the farm. Second, cost of transport and fees for medical services are too high to allow in-Faculty consultations. Also, in the surrounding area (100 Km) covered by the faculty there are some 2,000,000 pigs; 250,000 cattle and 500,000 sheep and goats. With these figures the Faculty preferred to encourage mobile clinic activities for these species.

## 7.5: HOSPITALISATION

Table 7.5: **Patients hospitalised in the clinics in the past three years**

| species | | Number of hospitalisations | | |
|---|---|---|---|---|
| | | **2003** | **2002** | **2001** |
| **Farm/large animals** | cattle | none | none | none |
| | equines* | 498 | 425 | 408 |
| | small ruminants | none | none | none |
| | pigs | none | none | none |
| | other farm animals | none | none | none |
| **Small animals /pets** | dogs | 1510 | 1440 | 1344 |
| | cats | 874 | 838 | 784 |
| | other pets | 125 | 118 | 112 |

*All the horses received for consultation are referred cases and are hospitalised at least

## 7.6: VEHICLES FOR ANIMAL TRANSPORT

State the number and nature of the establishment vehicles that can be used to bring sick animals to the clinics.
State whether or not clients are charged for this service.

There is a horse van (tow) to bring sick horses to the VTH. The van is lend to the animal owners if necessary. Clients are not charged for this service.

## 7.7: EMERGENCY SERVICE

Outline what in-house emergency service is available.

As described before, there is an emergency VTH service permanently available. This service covers emergencies in surgery, internal medicine, orthopaedics, ophthalmology and neurology.

## 7.8: MOBILE CLINIC

State the number of hours of operation per week.

Indicate arrangements for out-of-hours emergency services.

State the number, the type and the seating capacity of the vehicles used to transport students working in the mobile clinic.

State the approximate number of sick animals (specify cattle, swine, equine, poultry or small ruminants, others) seen by the mobile clinic in a year.

State the average number of visits in a year made by the mobile clinic to farms and studs for cattle, swine, equine, poultry, small ruminants, others.

Students do mobile clinic activities from 3rd to 5th years of the curriculum with external veterinary teams in bovine, porcine, poultry and rabbits (see chapter 4.7). In 3rd year students spend some 25 hours doing mobile clinic activities in two farms (bovine and swine). In 4th-5th year they spend one week in bovine mobile clinic (10-15 farms/week; approx. 100 animals/farm, approx. 7-8 cases/day) and 2 days in swine and poultry (1-2 farms each, approx. 250 sows, 500 weaners and fatteners, and more than 5,000 poultry). Transport to these mobile clinic activities is upon the students.
In the VTH only the behavioural disorders service have mobile clinic activities. This mobile service is done by request.

## 7.9: OTHER INFORMATION

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

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

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

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

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

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

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.

There is an agreement between the Faculty and a charity for the protection of abandoned cats. Within this frame, cats abandoned in the University area are sent to the Faculty for care and neutering before given to adoption or returned to the charity. Students are involved in these activities.

The VTH has a broad variety of services and high quality equipment that, considered as a whole, is well above of the average Spanish Veterinary Hospital. Also, the schedule and the emergency service are much extended compared to other private or public centres. The VTH staff has a high level of expertise and thus, most clinicians hold European and/or American diplomas of specialisation and belong to the respective European or American colleges. Also, the VTH develops postgraduate clinical studies meeting European requirements such as internships and residencies in several areas. VTH clinicians are recognised all over the country.

As a whole, the total percentage of referral cases in the Small Animal Unit is about 40%; nevertheless, in the specialised services referral cases reach 70-80% of the total consultations. For equines, all cases are referred. For small animals, the policy of the establishment is to reach a balance between the referral case load and non-referral cases up to at ratio 75:25. The rationale for this goal is to assure that teaching of most common clinical cases is done in the VTH without interfering with private practitioners.

The VTH have different services covering specialisations in Internal Medicine, Surgery, Anaesthesia, Orthopaedics, Dermatology, Neurology, Ophthalmology, Behavioural Disorders and Exotic Pet Medicine (see chapter 6). The VTH is open 24 hours a day every day of the year, this include emergency services. Every service has its own time schedule (see 7.4). Emergency services (24 h/day) cover internal medicine, surgery, anaesthesia, orthopaedics, neurology and ophthalmology.

In the Equine Unit, the Internal Medicine and the Surgery services appoint their patients from 9 AM until 6 PM every day. These services also enter an emergency rotation. There is always a specialist from both services on duty, as well as an anaesthetist. Equine dermatological, neurological and ophthalmologic cases are referred to the corresponding small animal services.

Fees are decided by the Directive Council of the VTH. As a general policy, fees are set to be at least equal or higher than those of the average private hospital. To avoid unfair competition with private practitioners an agreement was signed at the beginning of this year between the VTH and the Official Association of Veterinarians of Barcelona (COVB). This agreement establishes a permanent advisory commission to study such matters.

As stated before, one of the Faculty goals is to increase referrals to the VTH. The agreement with the COVB provides a frame to encourage such an increase and also promotes a more fluent relationship between private practitioners of the surrounding area and the Faculty. Also, there is an agreement with AVEPA (the Spanish Association of Small Animal Veterinarians) for mutual collaboration.

Regarding diagnostic services, most of them offer both internal and external support. The balance between external and internal services depends on the nature of the diagnostic activities. In addition, most diagnostic services offer consultancies to private veterinarians and companies. Most courses involving clinical subjects regularly invite

private clinicians for small group activities (i.e. presentation of cases, etc.) or for demonstrations. Private practitioners also collaborate with the VTH and, as a matter of fact, currently two external veterinarians participate in equine anaesthesia and scintigraphic diagnosis. Besides, the VTH is open to receive any private practitioner willing to improve or to learn specific techniques. Such an admission is subjected to availability.

We have the following agreements:

- Private practitioners: Agreement with 74 private practitioners (small animals, equine or farm animals) for compulsory extramural work
- Catalan government:
  - Network of state laboratories
  - Health Department (slaughterhouse inspection)
  - Agriculture Department
- Association of Meat Industries: Agreement for practical work
- Vallcompanys: Agreement with the biggest pig production company of Spain for practical training in pig production.
- Private pharmaceutical and pet food companies: Agreement for postgraduate training in small animal medicine

Client and patient information and economical data are kept in a customized data base designed specially to fulfil the VTH needs. This software also allows the introduction of clinical information, but clinicians do not use this part of the programme. This system works as a net. There is a computer in every consultation room and several computers at the reception desk. Patient records are kept on paper and clinical information is hand-written. Upon admission, the receptionist retrieves the client code or, in the case of a new client, assigns a new code. This code allows the location of the client's record in the archive. This same code is used to identify any diagnostic test, from laboratory samples to X-Rays. The radiographies are digitally obtained and stored in a computer data base.

## 7.10: RATIOS

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

7.10.1: **Animals available for clinical work**:

Ratio: students/production animals

$$\frac{\text{number of students graduated in the last year (2002-2003)}}{\text{number of production animals}} = \frac{163}{1{,}982} = \frac{1}{12.2}$$

Ratio: students/companion animals

$$\frac{\text{number of students graduated in the last year}}{\text{number of companion animals}} = \frac{163}{12{,}998} = \frac{1}{79.7}$$

7.10.2: **Animals available for necropsy**:

Ratio: students/post-mortem examinations

$$\frac{\text{number of students graduated in the last year}}{\text{number of cadavers necropsied}} = \frac{163}{725} = \frac{1}{4.4}$$

## 2. COMMENTS

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

Comment on local conditions or circumstances that might influence the ratios in 7.10.

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

a) Improve the operation of the Imaging Diagnostic Service.

b) To increase the referral case load of the Small Animal Unit compared with non-referral cases up to at ratio 75:25. Different measures have been taken in this sense such as limiting the number of first visits coming from surrounding areas. The goal is that the VTH becomes mostly a referral centre with high quality equipment and specialisation.

c) In the near future the construction of the new VTH building (see chapter 6.9) will allow increasing both the number of cases received and the available services. In addition, the increase in the number of exploration rooms and surgical theatres will allow increasing the number of students simultaneously attending consultations and will facilitate the proper management of the clinical cases.

d) It is expected to improve the information management in the administrative and clinical areas of the VTH. To meet this end, new software and training of clinicians are needed.

With regard to other clinical activities, new possibilities will be:

e) Although livestock clinical teaching has increased by 50% in the last three years, more mobile clinic activities for farm animals are needed. This will compensate for the lack of in-Faculty consultation for livestock. Catalonia is one of the most important regions of Spain regarding livestock. It is preferable to develop clinical training in farm animals “in situ” than to invest in faculty owned farm-animal clinic. Actually, the Faculty is currently talking with several livestock producers to reach new agreements in the near future.

f) The new rabbit farm will be also used for teaching. This new building, placed in the farm complex, will allow improving teaching in rabbit production and medicine (see chapter 6.9).

**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? |
|---|

# 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 has 1,302 $m^2$, distributed in three main areas: 540 $m^2$ of reading rooms (211 reading places), 402 $m^2$ for journals and 360 $m^2$ for the technical area and personnel allocation. Book and journal shelves are 1575 m long.

With regards to the internal organization, the Veterinary Faculty Library has a double dependence: organically on the MAE and functionally on the General UAB Library Service Network. This network is formed by 8 campus libraries and 4 branch libraries in UAB hospitals located in Barcelona. General regulations of UAB library services are available at http://www.bib.uab.es/ang/normativ.htm and users can be informed about the common services in the Service Chart ("Carta de Serveis") [a] .

Each library has a Faculty Library Commission with representatives from teachers, students and administrative staff, a Library Coordinator -acting as advisor- and a General UAB Library Commission (depending on the UAB Research Vice-Rector). The Library has a Director who manages the Library and acts as secretary of the Library Commission.

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

There is only one main library in the establishment.

[a] http://www.bib.uab.es/avaluacio/carta.htm

**Main library**:

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

| **State the library's annual operating budget over the past three years:** | | Euros |
|---|---|---|
| | Year 2004 * | 18,871,64 € |
| | Year 2003 | 19.491,31 € |
| | Year 2002 | 19.230,97 € |
| | ***Economic Year not finished* | |

| | | |
|---|---|---|
| **Number of full-time employees:** | 7 | |
| **Full time equivalents of part time employees:** | 1 (3 grant holders) | |

| | | |
|---|---|---|
| **Number of journals received each year (in addition to books):** | 400 (160 are regular subscriptions) | |

| | | |
|---|---|---|
| **Number of student reading places:** | 211 | |

| **Library opening hours:** | Weekdays | Weekends |
|---|---|---|
| **during term-time** | 12 h (8:30-20:30) | CLOSED |
| **during vacations** | 5 h (8:30-13:30) | CLOSED |

| | | |
|---|---|---|
| **Number of loans to students per academic year:** | 27.140 loans (all users) | |

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

Library resources and holdings are listed in the UAB public network catalogue [b] and in the University Union Catalogue of Catalonia[c]: Both catalogues have the same library system: VTLS (Virginia Tech Library System) on which you could search all the monographs, journals and every document located in the Catalonia university libraries.

[b] http://www.babel.uab.es/english.html
[c] http://www.cbuc.es/angles/ccuc/

Authors, titles, subjects, keywords are the main features in order to develop a document search. Internal library network manage digital resources through http://www.bib.uab.es/bibliotecadigital/. In the web page of our Library[d] there are links to the more specialized veterinary journals, amounting almost 700 titles (veterinary medicine, animal health, food science, agriculture and ecology).

| Subsidiary libraries of the establishment:<br>Please describe the subsidiary (e.g. Departmental) libraries of the establishment, and arrangements for student access. |
|---|

There are not subsidiary libraries at the Departments, but we have specific funds in form of extraordinary loans controlled directly by the Loan module of our Database Management System (VTLS). These loans are mostly taken by individual professors to help their teaching and research activities, and who are responsible for them.

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

The main library holds a list of all the books and documents that have been loaned. All the controls are managed by the Loan Module of our Database Management System.

[d] http://www.bib.uab.es/veter.fons/revel.htm

## 8.2: INFORMATION TECHNOLOGY SERVICES

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

The audio-visual service depends on the Library, and therefore, part of the information is common to both.

| **(a) Audio-visual service** | | |
|---|---|---|
| - is this specific to the veterinary training establishment? | YES | Located at the Faculty Library |
| - is this common to two or more establishments? | NO | |

| | | |
|---|---|---|
| Number of full-time employees | | 7 |
| Full time equivalents of part time employees | | 3 (grant holders) |
| | | |
| Total number of videocassettes available | | 860 (videos/dvd) |
| Total number of videocassettes that have been produced by the services in the past 5 years | | 20 DVD* |

| | | |
|---|---|---|
| Is a there a viewing room? | | YES inside/outside Library Service |
| If so, indicate: Inside the Library | | |
| - the number of places | 2 | |
| - the number of hours it is open each week | 60 | |
| - the opening hours: | weekdays | weekends |
| during term-time | 12 h (8:30-20:30) | CLOSED |
| during vacations | 5 h (8:30-13:30) | CLOSED |

Outside the library:

There are two Faculty classrooms (70 and 90 places) which are mainly dedicated to video viewing, and two more rooms equipped with a video equipment (78 and 50 places).

* The SIMU has also carried out the production of short videos for PowerPoint presentations for lectures (around 500), and the digitalization of many documents (150,000 slides and 300 hours of VHS/DVD).

**(b) Computer service**

It is named SIMU (Informatics and Multimedia Service). It is independent of the Library and it is regulated by a commission of users that controls and plans the use of its resources.

| | | |
|---|---|---|
| Is the computer service/department: | | |
| - specific to the veterinary training establishment? | YES | |
| - common to two or more establishments? | NO | |

| | | |
|---|---|---|
| Number of full-time employees | 4 | |
| Full time equivalents of part time employees | 1 | |

| | | |
|---|---|---|
| Number of computers available in the service: | | |
| - less than three years old | 54 | |
| - more than three years old | 0 | |
| Do students have free access to these computers for their own use? | YES | |
| Is there a computer room for self-use by students? | YES | |
| If there is, please indicate: | | |
| - the number of places | 46+ 15 p library | |
| - the opening hours: 12h (Computer Service) | weekdays | weekends |
| during term-time | 12 h | CLOSED |
| during vacations (Christmas, Easter, August) | CLOSED | CLOSED |

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

Yes, the computer service organises computer courses for teachers and students. We have also learning sessions on the use of research bibliographic databases:

http://www.bib.uab.es/veter/forma/bbdd.htm

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

Besides the computers available in the Computer Service and the Library, all the classrooms have a computer and a projector for teaching (14 units). The microscopy teaching laboratories also have a computer and projector to help image discussion (2 units).

## 2. COMMENTS

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

### Adequacy of books and journals

Library funds are specialized in the following three general subjects: Veterinary Medicine, Agriculture and Animal Production, Food Technology and Hygiene.
In the case of books, the funds of the library correspond to the bibliographies of each course. Although there is at least one copy minimum for each recommended title, we believe that in many cases this is not enough for our students. Funding mainly comes from the general UAB Library, which is clearly insufficient, and it has to be complemented by the general budget of the Faculty, the budget of the Departments, or even research projects, or clinical and diagnostic services. In the case of journals, preference of subscriptions is devoted for titles in digital format. Many titles have subscription in digital format for Catalonia University Bibliographic Consortia (CBUC) or UAB finance: http://www.bib.uab.es/project/remjour1.htm but again this is clearly insufficient for teaching and research necessities. In the case of videocassettes available (840), an important percentage comes from divulgative collections and they are not specialized productions.

### Opening hours

The opening hours have been increasing for the last years and now fulfil the needs of the majority of students. Some users suggest a wider timetable of opening but the limitation of budget prevents at the moment to provide more service hours. On the other hand, some of the campus libraries have a wider range of open services (Sciences and Engineering, Communication and Journals Library, Social Sciences and Humanities) and also there are a 24 h/365 days study room at the centre of the campus (Social Sciences): http://www.bib.uab.es/horaris.htm. That means that students may find a convenient place for studying and internet facilities at any time.

### Provision of reading spaces and support personnel

Considering our number of students, we have a good percentage of places/potential students during the whole course. The library offers 4 catalogue/digital point sites, 3 working group cabins and 8 publicly accessible computers. Also there is a Documentation Service with databases and self-learning programs to give support our

students: http://www.bib.uab.es/veter/fons/bbdd.htm. On the other hand, the Faculty has a versatile study room outside the library exclusively for students.

| IT FACILITIES:<br><br>Please comment on the establishment's approach to self-learning, on the adequacy of the provisions, and on any limitations on the further developments in this area. |
|---|

In the last years, an important improvement of the learning resources has been the development of a web-based application ("*Veterinaria Virtual*") that allows teachers to offer several kinds of materials through Internet (http://quiro.uab.es).

Presently, we have 57 subjects with resources available for student use. A majority of topics upload teaching material (notes, powerpoint slides, pictures, etc.), and so, students can access this material from anywhere. There is also a video collection available from the web that, at present, has 16 videos about different topics. The material is classified by subjects and is open to all the veterinary students. Each academic year, the material is revised and renewed if needed.

The UAB has another virtual platform for teaching ("*Campus Virtual*"), which besides uploading teaching materials offers teachers the possibility to have an online forum and some additional features. Some of the Veterinary Faculty topics use the more general Campus Virtual for teaching purposes.

Besides, many courses use Internet and/or computer programs for teaching. Some programs have been created by Faculty teachers. A list of the courses and programs used in our Faculty in the academic year 2003-2004 is attached in Annex 2.

## 3. SUGGESTIONS

a) The development of "Veterinària Virtual" and the improvement of the audiovisual material in the classrooms has allowed teachers to modify and renew their teaching material, making it more interesting and appealing to students. Through Internet, students may now obtain much high quality information (presentations, colour figures, improved schemes, etc.). At the same time, teachers should be able to take advantage of the wide range of possibilities that "Veterinària Virtual" offers for new teaching approaches. An example for these new possibilities, is the case of the "Virtual Necropsy of the Week", that is available at this platform to all the students.

b) The next step will be to provide wireless connection for access to Internet through laptops, PDA, etc. In the first time, access from several areas in the Faculty will be provided (classrooms, Library, Student's Room, HCV, Main Hall, etc.). On a second phase, the access will be possible from anywhere in the building.

c) Another important point is to increase the budget of the Library allocated to books as well as to scientific journals, especially with online access. Although we do not have any executive role about the UAB General Library policies, we will do our best to improve this aspect.

# Chapter 9 - ADMISSION AND ENROLMENT

## 1. FACTUAL INFORMATION

### 9.1: STUDENT NUMBERS

Table 9.1.1: **Undergraduate student composition. Academic year 2003-04**

| | | |
|---|---|---|
| a. | Total number of undergraduate students | 958 |
| b. | Male students | 240 |
| c. | Female students | 718 |
| d. | Nationals | 914 |
| e. | Foreign students | 44 |
| | - from EU countries | 31 |
| | - from non-EU countries | 13 |
| f. | 1st year students | 155 (16,17 %) |
| g | 2nd year students | 187 (19,52 %) |
| h. | 3rd year students | 167 (17,43 %) |
| i. | 4th year students | 183 (19,10 %) |
| j. | 5th year students | 266 (27,77 %) * |
| k. | 6th year students | - |
| l. | 7th, or subsequent year students | - |
| m | students not in any specific year | - |

**Note:** Our informatic application allocates students per course; thus, numbers reflect the highest number of students enrolled in courses of a given year.

* Actual duration of the studies is more than 5 years because extramural work that must be done between the 4th and 5th year is not allocated in any semester. As a result, most students spent a 11th semester to perform this activity.

Table 9.1.2: **Postgraduate student composition**

| | | |
|---|---|---|
| n. | Total number of postgraduate students | 166 |
| o. | Male students | 60 |
| p. | Female students | 106 |
| q. | Nationals | 117 |
| r. | Foreign students | 49 |
| | - from EU countries | 7 |
| | - from non-EU countries | 42 |
| s. | 1st year students | 56 |
| t | 2nd year students | 41 |
| u. | 3rd year students | 21 |
| v. | 4th year students | 26 |
| w. | 5th, or subsequent, year students | 22 |

Give the total number of students in the establishment (a + n): 1124

## 9.2 STUDENT ADMISSION

| |
|---|
| State the minimum admission requirements.<br>Outline any selection process (or criteria) used in addition to the minimum admission requirements. |

Minimum admission requirements**:**

In Spain, education is structured in five stages: pre-school (children 3-5 years old), compulsory primary education (6-12 years), secondary compulsory education (12-16 years), high school ("*bachillerato*", 16-18 years) and higher education. High school studies have four different branches each one of them permitting access to a set of a given university studies. For example, a student that wishes to enrol in a Veterinary Faculty should have completed the *Health and Nature Sciences* branch of the "*bachillerato*". Also, students must apply in advance for a given number of university studies indicating their preferences (i.e. 1$^{st}$ veterinary medicine, 2$^{nd}$ medicine, 3r chemistry, etc.). The main mechanism of admission to the university is through a general examination called "*Pruebas de Acceso a la Universidad*" (PAAU) that is carried out at the end of the "*bachillerato*". A final qualification is obtained by adding up 60% of the average qualification obtained in high school to the 40% of the qualification obtained in the PAAU. Since a *numerus clausus* policy is applied in the university, admittance is carried out in a competitive way. For example, if our Veterinary Faculty is entitled to admit 142 students, these are selected among the higher qualifications of those applying for Veterinary Medicine as the first option. When the number of applications is not enough to fulfil the quota, a second round of selection will start with second options and so on (Fig. VI). The total number of offered places is agreed between the University and the Catalan Government (*DURSI).*

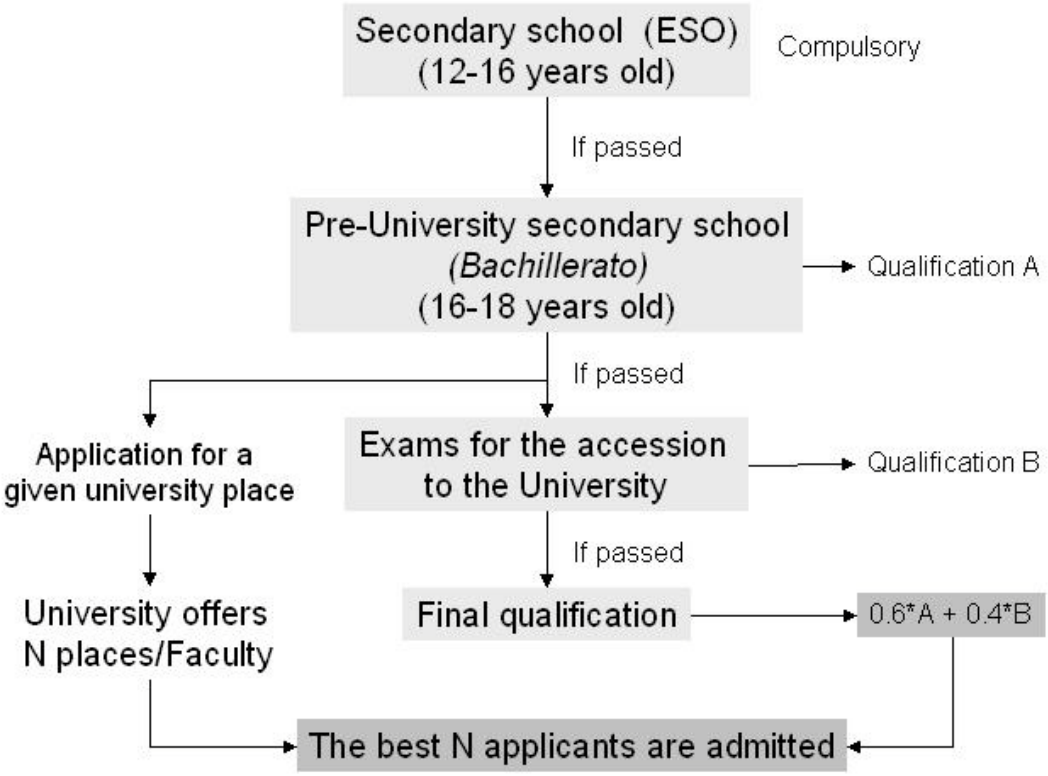



**Figure VI.** Structure of education and admission procedure in Spain

Student entry qualifications: This year (2004-2005), admittance was allowed to students having a final qualification ≥7.00/10.00. In past years, this value was set between 6.92 and 7.02. The entry requirement is calculated from a formula that takes into account the offer (142 places for regular students in 2004) and the demand.

Transfer of students coming from other Spanish Universities or from abroad:
The majority of students are admitted on the basis of the criteria stated above (called "*Via 0*"). Nevertheless, other possibilities to enrol are also considered for special cases:

a) A special way of admittance corresponds to handicapped students and first-level sportmen/women (these later should be enrolled in special programs of the Spanish and Catalan governments, respectively). This way may account for a maximum 2% of the admittance. These students must have passed PAAU but do not compete with ordinary students in the ranking. In any case, the total number of ordinary students plus this special way should fit the maximum quota allowed for the faculty.

b) Students coming from other Universities abroad should apply for a different admittance way that is regulated by a national law. At least, they should be able to demonstrate that they have passed examinations corresponding to courses that account for 60 credits of the veterinary curriculum in our university. Detailed programs of each course have to be annexed to the application for further scrutiny.

c) Students that come from other universities of Spain: In this case, the student must apply for a transfer. The applicant has to present a certification of his/her PAAU qualifications, a certificate of his/her academic performance in the previous university and a detailed memorandum explaining the motivation of the application. Academic performance and PAAU qualification are used to calculate an index that permits ranking of applicants. The University set the maximum admittance by this way to a total number equivalent to 5% of students enrolled by ordinary ways. However, each faculty can ask the University authorities to further reduce this quota. In our case, we set this admittance to 3%.

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.

All the students must take Biology and Chemistry at high school ("*bachillerato*"). Many of them also take Mathematics and Physics as non-mandatory courses. Althoguh the required qualification to be admitted into our Faculty is quite high, some minor differences in basic scientific knowledge are found between 1rst year students.

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

As stated above, the total number of offered places is agreed directly with the Catalan Government (DURSI).

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

The MEC offers a number of global government-funded student places ("*becas*"), for all kinds of studies and Universities. The student must apply and a decision is made on

the basis of the academic curriculum and the household economic status. No previous distribution among universities or studies is made. So, the actual number changes from year to year. In the academic year 2003-2004, a total of 113 students were funded (11.8 % of the veterinary students; 55.7% of the applications).

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

No other circumstances are considered.

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

No major changes in the number of first year-students are foreseen in the next years. In any case, a decrease in the number of students will be negotiated with the Catalan Government (DURSI).

Table 9.2: **Intake of veterinary students**

| Year | number applying for admission (as a first option) | number admitted | |
|---|---|---|---|
| | | 'standard' intake | other entry mode Transfers (national/ foreign) |
| 2004-2005 | 387 | 142 | 6/2 |
| 2003-2004 | 418 | 152 | 7 (5/2) |
| 2002-2003 | 545 | 156 | 9 (4/5) |
| 2001-2002 | 470 | 156 | 4 (4/5) |
| 2000-2001 | 504 | 162 | 8 (4/5) |
| 1999-2000 | - | 164 | 9 (4/5) |
| 1998-1999 | - | 172 | 9 (4/5) |
| 1997-1998 | - | 166 | 9 (1/5) |
| 1996-1997 | - | 170 | - |
| 1995-1996 | - | 185 | - |
| 1994-1995 | - | 195 | - |

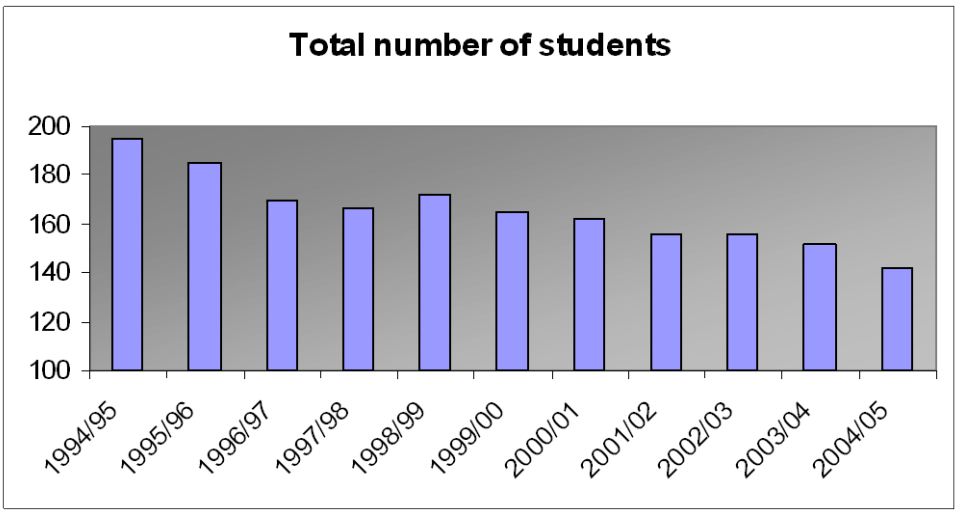



**Figure VII.** Number of enrolled students (1994-2004)

Another source of students temporarily staying at the establishment are exchange programs (Table VIII). These students are partly balanced by those leaving to other Veterinary Faculties. The exchange programs for students are:

a) Erasmus: for EU students

b) Seneca: for Spanish students.

c) UAB Mobility: for non-EU students.

| | Incoming students | | | | Outgoing students | | | |
|---|---|---|---|---|---|---|---|---|
| | 01-02 | 02-03 | 03-04 | 04-05 | 01-02 | 02-03 | 03-04 | 04-05 |
| Erasmus | 33 | 29 | 25 | 27 | 12 | 13 | 10 | 13 |
| Seneca | 3 | 10 | 9 | 9 | 1 | 2 | 2 | 6 |
| Mobility | 0 | 2 | 3 | 0 | 1 | 0 | 2 | 2 |

**Table VIII.** Student exchanges with other establishments.

## 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:

These students were admitted on the stated academic year. Their present academic situation is:

| | | 1998 - 1999 |
|---|---|---|
| b. | 1st year | 0 |
| c. | 2nd year | 2 |
| d. | 3rd year | 1 |
| e. | 4th year | 11 |
| f. | 5th year | 72 |
| g. | how many have graduated | 55 |
| h. | how many have dropped out or been asked to leave* | 12 |
| i. | how many are not in any identifiable year | - |

*UAB considers as dropped out-students those that have not applied for two consecutive years. No students were asked to leave due to a major academic failure.

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

| | **Year** | **Number graduating** |
|---|---|---|
| j | N (2003-2004) | 133 |
| | N - 1 (2002-2003) | 161 |
| | N - 2 (2001-2002) | 137 |
| | N - 3 (2000-2001) | 162 |
| | N - 4 (1999-2000) | 183 |

Table 9.3.3: **Average duration of studies**

In the case of students graduating in year N (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?

STUDENTS GRADUATED IN 2002-2003:

| | **Duration of attendance** | **number** |
|---|---|---|
| k. | 4 years | - |
| l. | 5 years | 51 (30.9%) |
| m | 6 years* | 61 (37.6%) |
| n. | 7 years | 27 (16.5%) |
| o. | 8 years | 12 (7.5%) |
| p. | 9 years | 7 (4.2%) |
| q + r | more than 10 years | 5 (3.0%) |
| Average duration of studies of the students who graduated in year N: | | 6.15 years |

* Students that do their extramural work in a 11th semester are included here.

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

There are no requirements for progression to a subsequent year of the course, but the maximum number of credits allowed to take yearly is 105.

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

Student failing to pass a number of courses equivalents at least to 300 h in two years can only continue on probation for one additional year. If the next year fails again, is dismissed ("*Normativa de permanència*"). On the other hand, the student has six times for passing an exam for every subject. In case he is not able to pass, he/she can ask for another opportunity to the Social Council ("*Convocatòria extraordinària*"). The student must leave the establishment in the case he is not able to pass this special exam.

## 2. COMMENTS

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

Strengths

a) The qualification needed to attend our school is amongst the highest in Catalan Universities.

b) Number of accepted students is substantially lower now than several years ago because of a continuous decrease in the *numerus clausus*. This fact has made possible to improve substantially the practical work (laboratory, clinical training in small and large animals: “modules”, etc.) and also helped to do more interactive teaching (self-learning, case-oriented teaching, etc.).

c) An important effort has been made to share rooms and materials for teaching. Due to this fact, the efficiency for the use of the facilities is very high.

d) Strong involvement in all actions aimed to increase the use of new teaching methodologies. The Faculty has been chosen to participate in several projects (TEEP-Trans European Evaluation Project, European Space of Higher Education) as it is considered a leading Faculty in these aspects. The Faculty was recently awarded the prize “Jaume Vicens Vives” of the Catalan Government for excellence in teaching in higher education.

e) We have several quality control methods to assure that satisfactory progress of the students is maintained: personal tutorials for the students, control of teaching accomplishment, periodical surveys for student satisfaction, etc.

f) The drop-out of students is consistently low (12 students for the last five years) and thus the majority of the students finishes their degree.

Weaknesses

a) The Faculty does not have the ultimate decision to establish the admittance quota. This quota is fixed by DURSI, that can consider or not the petition made by Faculties or Universities.

b) The contents and organization of the curriculum are in general adequate. However, with our high student intake, the development of practical training in small groups is difficult. In spite of the advances done in the last years, more work is needed to solve this problem.

c) Low executive capacity. Although we have developed several methodologies to assess the progress of the students along their career and to identify problems, the Dean and his team do not have real mechanisms to solve them.

d) Students have a high load of work and little time to study (see comments on chapter 4). In addition, the mandatory extramural work is allocated off regular courses. This combination of facts produces that most students need to spend more than ten semesters to finish their studies.

## 3. SUGGESTIONS

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

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

a) We are fairly satisfied with our situation in terms of student admission and progression. However, our policy is to decrease the number of accepted students down to at least 125 per year.

b) The process of adaptation to the European Space of Higher Education should help to introduce modifications in the curriculum, as well as in teaching and evaluation methodologies. This would help to decrease the average duration of studies.

# Chapter 10 - ACADEMIC AND SUPPORT STAFF

## 1. FACTUAL INFORMATION

**Table10.1: Personnel in the establishment**

| | Budgeted posts (FTE) | Non-budgeted posts (FTE) | Total (FTE) |
|---|---|---|---|
| **1. Academic staff** | | | |
| a) Teaching staff | 141.5 | - | 141.5 |
| b) Research staff | 0.5 | - | 0.5 |
| c) Others (please specify) | - | - | - |
| | | | |
| d) Total academic staff | 142 | - | 142 |
| **2. Support staff** | | | |
| e) responsible for the care and treatment of animals (HCV, Farms) | 18 | 0 | 18 |
| f) responsible for the preparation of practical and clinical teaching. | 20 | 0 | 20 |
| g) responsible for administration, general services, maintenance, etc. | 43 | 3 | 46 |
| h) engaged in research work | 6 | 37 | 43 |
| i) others (Library, SIMU) | 10 | 0 | 10 |
| | | | |
| j) Total support staff | 97 | 40 | 137 |
| **3. Total staff (d + j)** | | | 279 |

Note: There are 28 more people from external services (not hired directly by the University) who are responsible for cleaning, cafeteria, photocopies and shop.

| **Table10.2** | ACADEMIC STAFF (Total number) | | | | | SUPPORT STAFF (Total number) | | |
|---|---|---|---|---|---|---|---|---|
| | *CU* | *TU* | *Assistant* | *Associate* | *Research* | *Teaching* | *Research* | *Adm/Gen* |
| *Animal Biology* | *1* | *1* | *1* | *0* | *0* | *1* | *1* | *0* |
| *Physiology, Cell Biology and Immunology* | *2* | *7* | *1* | *2* | *0* | *1* | *1* | *1* |
| *Biochemistry and Molecular Biology* | *2* | *3* | *0* | *4* | *1* | *1* | *8* | *2* |
| *Animal and Food Science* | *5* | *24* | *4* | *12* | *2* | *5.5* | *11* | *5* |
| *Economics* | *0* | *0* | *0* | *1* | *0* | *0* | *0* | *0* |
| *Pharmacology and Toxicology* | *1* | *4* | *1* | *4* | *0* | *1* | *7* | *1* |
| *Mathematics* | *0* | *1* | *0* | *3* | *0* | *0* | *0* | *0* |
| *Animal Medicine and Surgery* | *2* | *20* | *4* | *13* | *0* | *5. 5* | *2* | *2.5* |
| *Legal Medicine* | *0* | *0* | *0* | *2* | *0* | *0* | *0* | *0* |
| *Chemistry* | *1* | *0* | *1* | *0* | *0* | *0* | *0* | *0* |
| *Animal Health and Anatomy* | *3* | *19* | *5* | *11* | *0* | *5* | *7* | *2.5* |
| *HCV/Farms/Food Technology Plant* | *0* | *0* | *0* | *0* | *0* | *24* | | *7* |

**CU** (Catedrático de Universidad): Full professor, civil servant, full time. **TU** (Profesor Titular de Universidad): Associate professor, civil servant, full time. **Assistant teacher**: hired position, full time. **Associate teacher**: hired position, part time (several types). **Research staff** (Ramon y Cajal, ICREA): new hired positions financed by the Spanish or Catalan governments for highly specialized scientific people. Ramon y Cajal fellows may participate in undergraduate teaching.

Besides these academic positions, postgraduate students funded by an official fellowship (Spanish ministry, Catalan Government, UAB) may collaborate in practical teaching up to 60 hours/year during the first 2 years of the fellowship and up to 90 hours/year during the 3rd and 4th year. This potential accounts for 3 FTE approx.

Table 10.2 does not include support staff from faculty administration, library and computer service.

**Table 10.3: Personnel responsible for undergraduate teaching**

| | | |
|---|---|---|
| A. | Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching | 141.5 |
| B. | Number of research staff involved in undergraduate teaching | 0.5 |
| C. | Total number of personnel responsible for undergraduate teaching (A + B) | 142 |

**Ratios**

Ratio: teaching staff/undergraduate students

$$\frac{\text{number of teaching staff}}{\text{number of undergraduate students}} = \frac{142}{958} = \frac{1}{6.75}$$

Ratio: teaching staff/support staff

$$\frac{\text{number of teaching staff}}{\text{number of support staff}} = \frac{142}{137} = \frac{1}{0.97}$$

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

Teaching staff:

As stated in Chapter 2 (Organisation), the Department is the body that has the right to request new academic positions and hires teaching staff. There are two types of academic staff: tenured and hired, each one recruited in a different way. Both are budgeted permanent positions financed by the university.

The university has been historically based on tenured positions, whereas the hired positions were mainly for young teachers and part-time staff. Tenured positions (called "*profesor titular*" and "*catedrático*") are civil servants. At present, the Spanish University is in a process of change that will probably favour hiring teaching and research staff. There have been changes in the recent years on the law defining the process to fulfil these positions. This law may change again in the next future.

At present ("*Ley Orgánica de Universidades"* 6/2001) the process for new tenured positions is as follows: The Departments present their needs to the university. Usually, needs are mostly based on teaching duties. Each university makes a proposal to the Ministry of Education about the number and characteristics (area of knowledge) of the tenured positions needed. Once the proposals are approved and open to applicants (requirements are to hold a PhD and to have a recognised research activity of 6 or 12 years depending on the type of tenure), there is a competitive selection based on the suitability of candidates, who have to present and defend, orally and in writing, a teaching project about the courses that he/she shall impart. Also, applicants have to present and defend his/her scientific career. A jury, composed by tenured professors, randomly elected among those in the given area of knowledge, decides whether or not a given candidate is able to cope with the requirements of that tenured position. Once the commission gives the approval (called "*habilitación*") to the candidates, the university choose among them. The method to carry out this final selection is up to each university. It is expected that a change in this process will occur in the next future.

For hired teachers the process must be decided by the parliament of each autonomous region but this is not completely defined yet. The LUC dictated by the Catalan

Government in 2003 defines two categories for hired teachers: permanent positions (equivalent to "*catedrático*" and "*titular*") and non-permanent (*professors lectors, professors col·laboradors, professors associats*). *Lectors* and *col·laboradors* should hold a PhD degree, be able to demonstrate their capacity through an accreditation process, and are full-time positions. Access to each category has a number of requirements that are explained in the national laws LOU and LUC.

Support staff:

The number and allocation of support staff financed by the university is directly negotiated with the Rectorate depending on the actual needs of the establishment (administrative, general services, etc). In any case, there are two types of support staff: tenured and hired, in a similar way than with support staff. We have had an important increase in non-budgeted, non-permanent positions for research support because of the current easier mechanisms to hire people financed through research projects.

| Indicate whether there are difficulties in recruiting or retaining staff.<br>Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade. |
|---|

It is very difficult to increase the number of tenured positions due to the general system. New positions are conceded based mainly in the ratios between number of students and teachers. As the actual number of students in our establishment has been decreasing during the last years, the number of tenured positions has not substantially changed. On the other hand, vacancies are usually filled with few difficulties.

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

It is not difficult to employ additional staff from service income or research projects. However, it is worth to mention that the different Services (HCV, Diagnostic Services, and Research Support Services) are not funded by the university and are not allowed to have deficit. Provided this positive situation, they may manage their economy in an autonomous way, including the hiring of personnel.

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

Full time teachers are not allowed to have an outside work (consultation or private practice), except through institutional agreements between the UAB and third parties.

| Describe the possibilities and financial provisions for the academic staff to:<br>a) attend scientific meetings;<br>b) go on a sabbatical leave |
|---|

Academic staff should provide financial support from external sources to attend scientific meetings. These funds usually come from research grants, clinical work, etc.
The university has a program for sabbatical leaves for teachers staying at the university for 25 years. Recently, a new program to facilitate six-month leaves for research or specialization of younger teachers has been launched. Leaves for shorter periods of time are easier to obtain as long as the teaching duties are fulfilled by the Department.

## 2. COMMENTS

| Comment on the numbers of personnel in the various categories |
|---|

Academic Staff: The number and, more importantly, the category of positions have been improving steadily for the last two decades. The difficulties for hiring more tenured teachers derive mostly from the fact that they are civil servants. As it has been stated before, this has recently changed and hopefully the new laws will allow the hiring of highly qualified academic staff in both teaching and research.

On the other hand, we consider that the academic staff has a high degree of quality, and, moreover, is young (average age about 44), facilitating the adoption of new teaching methodologies and the implementation of new technologies in the classroom.
In some Departments, a relative unbalance between areas may exist. For example, the Animal Production area may be somewhat over-represented whereas Food Technology is slightly short of academic staff.

Support staff: The number of support staff has increased during the last 6-7 years due to the abovementioned hiring system from research projects or diagnostic work. These

two activities have been very active in the last years, providing an important potential to recruit new people, mostly technical staff and graduate students. We consider this a very positive situation, although it has the caveat that those are non-permanent positions that may disappear in a less positive situation.

Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sector.

Salaries for qualified staff are higher in most private veterinary activities of similar expertise. On the other hand, teaching staffs at the higher level are civil servants, and this is a condition that warrants the stability of salaries and positions.

Comment on the percentage of veterinarians in the academic staff

The percentage of veterinarians in the academic staff is around 70%. The large majority of academic staff in the three main Departments (Animal Medicine and Surgery, Animal Health and Anatomy, and Animal and Food Science) is comprised of veterinarians, whereas this percentage is lower in the Basic Sciences Departments. We believe that this is a positive situation.

## 3. SUGGESTIONS

The ratios between teaching staff and students and between teaching and support staff are satisfactory. Nevertheless, we would like to comment some situations that we are trying to improve:

a) Support staff is not allowed to have teaching responsibilities. This is especially important in the case of the veterinarians of the VTH, who are not academic staff, but who have students in their consultations. Actions are being undertaken with the Rectorate to recognise that for clinical activities these veterinarians working as a support staff also perform teaching work.

b) On the other hand, we have already mentioned the important increase in the number of support staff that is being financed with external revenues (research projects, diagnostic or clinical services). This is a positive situation that reflects the potential of our Faculty, but we believe that it is necessary to have a more sound institutional financial support to back up these initiatives.

# Chapter 11 - CONTINUING EDUCATION

## 1. FACTUAL INFORMATION

Table 11.1.1: **Courses organised by the establishment itself in the most recent year (2003-04)**

| Title of course | Number of participants | Total number of hours of the course |
|---|---|---|
| **Department of Animal Medicine and Surgery / VTH** | | |
| Postgraduate course on Veterinary Ophthalmology | 27 | 136 h |
| Veterinary Continuing Education Course | 115 | 40 h |
| Course on Small Animal Surgery | 160 | 120 h |
| Course on Facoemulsification | 5 | 15 h |
| Course on Small Animal Anaesthesia | 29 | 80 h |
| AVEPA Congress | 700 | 15 h |
| 14th ECVIM-CA Congress | 600 | 50 h |
| III Meeting of AVEPA Workgroups | 400 | 16 h |
| Meeting of the Spanish Association of Veterinary Orthopaedics | 30 | 10 h |
| First International Biomechanics Congress | 60 | 20 h |
| Nutrition of the young horse | 70 | 2 h |
| Applications of platelet-enriched plasma in equine orthopaedics | 30 | 2 h |
| Feline Diabetes and Obesity | 70 | 2 h |
| Gastrointestinal Disease and Food Intolerance | 70 | 2 h |
| Bucodental Disease | 70 | 2 h |
| FLUTD | 70 | 2 h |
| Cognitive Cerebral dysfunction | 70 | 2 h |
| Course on gastrointestinal Pathologies | 70 | 2 h |
| Renal Disease | 70 | 2 h |
| Diagnostic and Treatment of chronic diarrhoea | 70 | 2 h |
| | | |
| **Department of Animal and Food Science** | | |
| Intensive beef production systems | 20 | 80 h |
| Quality control Course: Feedstuff microscopy | 24 | 36 h |
| II Workshop on Food Microbiology Automatization and Rapid Methods | 189 | 24 h |
| Transgenic and clonic animals | 30 | 20 h |
| | | |
| **Department of Animal Health and Anatomy** | | |
| Training Course in Anatomical Vascular Preparations | 4 | 40 h |
| VII UAB-Swine Symposium | 120 | 16 h |

Table 11.1.1: Courses organised by the establishment itself in the most recent year (2003-04).)

| | | |
|---|---|---|
| **Department of Biochemistry and Molecular Biology** | | |
| Towards clinical gene therapy: pre-clinical assessment of gene transfer:<br>1: Conference on pre-clinical gene transfer<br>2: Practical course on in vivo gene delivery | 152<br>32 | 48 h<br>63 h |
| Cell and gene therapy- vaccine logistics of clinical development | 80 | 7 h |
| Meeting of the Yeast Molecular Biology Network | 74 | 8 h |
| EMBO Conference/FEBS Advanced Course on Protein Phosphatases | 100 | 40 h |
| | | |
| **Department of Physiology** | | |
| Category C Felasa Course for scientists using in experimental animals * (2 courses in 2004) | 40 x 2 | 80 h |
| Big brain Little brain meeting | 40 | 32 h |

* This course is accredited by FELASA (Federation of European Laboratory Animal Science Associations).

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

| Title of course | Number of participants | Total number of hours of the course |
|---|---|---|
| | | |
| **Department of Animal Medicine and Surgery / VTH** | | |
| Veterinary Continuing Education Course | 78 | 40 h |
| Course on Small Animal Surgery | 64 | 80 h |
| Course on Small Animal Anaesthesia | 146 | 120 h |
| Equine Reproduction Course | 50 | 20 h |
| Postgraduate Course on Horse Physiotherapy | 10 | 180 h |
| Christmas meeting for referring veterinarians | 40 | 5 h |
| | | |
| **Department of Animal Health and Anatomy** | | |
| Meeting on risk assessment and integrated ochratoxin A management in grape and wine. | 30 | 15 h |
| II Course on Angiogenesis | 50 | 10 h |
| VI UAB-Swine Symposium | 100 | 16 h |
| | | |
| **Department of Animal and Food Science** | | |
| I Workshop on Food Microbiology Automatization and Rapid Methods | 189 | 24 h |
| Course on Eggs and Egg-derived Products | 65 | 16 h |
| Implantation of APPCC in feedstuff industry | 15 | 16 h |
| Intensive beef production systems | 20 | 80 h |
| Transgenic and clonic animals | 30 | 20 h |
| | | |
| **Department of Biochemistry and Molecular Biology** | | |
| Insulin resistance, diabetes mellitus and obesity: Impact of Genetic Techniques | 108 | 5 h |
| | | |
| **Department of Physiology** | | |
| Category C Felasa Course for scientists using in experimental animals * (3 courses in 2003) | 40 x 3 | 80 h |

Table 11.1.3: **Courses organised at the establishment by outside bodies in the most recent year (state year).**

| Title of course | Number of participants | Total number of hours of the course |
|---|---|---|
| Pharmacovigilance | 165 | 2 h |
| Seminars about Therapeutics | 165 each seminary | 48 h |
| Postgraduate Practical Course on Pig Production | 2 | 720 h |
| Food Control and New Technologies in Restaurants (Col·legi de Veterinaris) | 70 | 8 h |
| Veterinary Neurology (Col·legi de Veterinaris) | 70 | 8 h |
| 2nd Course on Veterinary Neurology (Col·legi de Veterinaris) | 70 | 8 h |
| Fresh Fish Products (Col·legi de Veterinaris) | 50 | 8 h |
| Pathology and Inspection of Porcine Meat (Col·legi de Veterinaris) | 70 | 8 h |
| 2nd course on Food Control and New Technologies in Restaurants (Col·legi de Veterinaris) | 70 | 8 h |
| Jornades Pirena (Mushing) | 300 | 20 h |
| Base sports technicians (Catalan Equestrian Federation) | 15 | 32 h |

**Other activities**

| | | |
|---|---|---|
| European College of Veterinary Internal Medicine-Companion Animals Exam | 27 | |
| European College of Veterinary Pathology Exam | 17 | |
| Meeting of the Council of the European College of Laboratory Animal Medicine | | |
| Meeting of the European Commission on Food Security | 20 | |

| | | |
|---|---|---|
| Master Degree UAB- National University of Agriculture of Nicaragua<br>Livestock systems in Tropical Conditions | 35<br>(from Central America) | 560 h (in 4 years) |

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

Teaching staff of the establishment is involved in continuing education activities organised by outside organisations. For example, they participate in the activities organised by associations of private practitioners, other public organisms, the Official Colleges of Veterinarians, etc. A detailed account of these activities is not done because huge amount of courses and people involved.

### 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.

**Surgery and Medicine**

"Veterinary Clinical Training Course" for postgraduate students. 50 hours

**Pharmacology**

Teachers of the veterinary pharmacology unit have designed self-assessment test software to provide a means to evaluate their knowledge of pharmacology through internet. The Unit provides a pool of 500 interactive questions that is renewed every 6 months.

## 2 COMMENTS

Comment on the quality of the continuing education programmes in which the establishment is involved.
Comment on the degree of participation of veterinarians in the continuing education programmes in which the establishment is involved.

Continuing education is probably one of the main caveats of our Faculty. There may be several reasons for that:

a) Lack of tradition: For years, Spanish universities have focused on undergraduate and postgraduate education (leading to master and doctorate

degrees). Continuing education, as a part of the interaction with the society, was usually considered as a task for which the university was not really responsible. This inertia is difficult to overcome; nevertheless many efforts have been undertaken in the last years.

b) Lack of academic recognition: Continuing education has not been a high priority for university governors and thus, time and efforts spent in these activities have been not suitably recognised to teachers.

c) Lack of time: Academic staff is deeply involved in teaching and research, resulting in full time dedication to their work.

d) Logistic difficulties: There is not a good organization support from the university, and administrative and management tasks usually require too much effort.

Regarding the participation of veterinarians in continuing education activities, we believe is quite high, indicating that there is probably a need for them.

## 3. SUGGESTIONS

a) One of the aspects that may be more readily addressed is to facilitate the administrative and logistic tasks to the teachers. Continuing education courses many times have been the consequence of individual initiatives and not a collective aim. This is one of the causes of the many organization difficulties.

b) Postgraduate courses in the university are recognized by the School for Postgraduate Studies ("*Escola de Postgrau", EP*), which also collaborates in the preparation and management of the course. A negotiation with the University is also needed to improve the interaction and collaboration between Departments, teachers and the EP.

# Chapter 12 - POSTGRADUATE 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 | |
| **Surgery and Medicine** | | | | |
| 1. Internship at the VTH | 18 months | 14 | - | |
| 2. Residency in neurology | 3 years | 2 | - | DipECVM (Neurology) |
| 3. Residency in ophthalmology | 3 years | 1 | - | DipECVO |
| 4. Residency in equine internal medicine | 3 years | 1 | - | DipECEIM |
| 5. Residency in equine surgery | 3 years | 2 | - | DipECVS |
| 6. Residency in dermatology | 3 years | 1 | - | DipECVD |
| 7. Residency in small animal internal medicine | 3 years | 1 | - | DipECVIM |
| | | | | |
| **Physiology** | | | | |
| Laboratory animal medicine | 2 years | 2 | - | DipECLAM |

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

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

There are two kinds of postgraduate clinical training courses:

- Internships: The internship program includes 14 veterinary graduates (9 in the small animal unit and 5 in the equine unit) that spend a total period of 18 months in a rotation system through different clinical activities (anaesthesia, surgery, dermatology, exotic animals, ophthalmology, neurology, orthopaedics and intensive care for small animals, and internal medicine, surgery, image diagnostic and anaesthesia for equine). Interns collaborate in all the clinical procedures under the supervision of senior veterinarians. They also enter the after-hours emergency service. They are chosen between all the postgraduates

that apply for such a position at the VTH according their CV and after a personal interview. These interns receive a salary during this period.

- Residencies: There are 8 residencies that allow specialization in several disciplines and that serve as a training to obtain a Speciality Diploma. All residents receive a salary which is paid by a veterinary or pharmaceutical company.

- The Diploma in Laboratory Animal Medicine is organized by the Department of Physiology and is certified by the European College of Laboratory Animal Medicine. The residents also receive a salary.

## 12.2: TAUGHT POSTGRADUATE COURSES

Table 12.2.1: **Taught postgraduate courses**

| | | Number enrolled | |
|---|---|---|---|
| | Duration of training | Full time | Part time |
| | | | |
| *(b) Masters level (discipline)* | | | |
| Master on Companion Animal Clinical Ethology | 320 h | | 20 |
| Master on Laboratory Animal Science | 320 h | | 18 |
| Consulting and management of dairy cattle farms | 320 h | | 27 |

The Master on Companion Animal Clinical Ethology comprises 320 h in one year, 200 of them consisting in theoretical and practical lectures, and the rest (120h) dedicated to a research project. This master has the participation of 15 teachers (10 from the Veterinary Faculty, 3 from other Spanish Veterinary Faculties and two from other European Faculties). Last year, there were 20 students, two of them from EU countries, three from South America and the rest from Spain.

The Master on Laboratory Animal Science comprises 320h in 3 years, 260h of them consisting in theoretical (75%) and practical lectures (25%) and the rest (60 h) to a

research project. It has the participation of 15 teachers from UAB, and other Spanish (30) and European (12) institutions.

The Master on “Consulting and management of dairy cattle farms” consists in 320 h of lectures that are taught in 8 sessions of 1 week each (40 h). Because students are currently in practice, each session takes place every 3 months, and the whole program lasts for 2 years. The program is taught by teachers and professionals from UAB (6), other Spanish professionals (8) and international teachers (2 from US Universities, 1 from Israel and 1 from Portugal). The program accepts 25 students, all of them being veterinary practitioners with at least 3 years of experience in the dairy farm business. Lectures include: Nutrition (2 weeks), Reproduction (1 week), Milk quality (1 week), Technical management (1 week), Facilities and manure management (1 week), and Business management and planning (2 weeks).

| Do students involved in this training receive a grant or a salary? |
|---|

No. Students usually do not receive any salary.

| Indicate the extent to which training towards a diploma is combined with clinical training.<br><br>Indicate the percentage of graduating students who follow such training |
|---|

In the case of internships and residences at the VTH, clinical training is a main part of the training, combined with case discussion and report writing. In the case of postgraduate masters, a detailed description has been given above.

The percentage of graduating students entering these programs is quite low:

- Internships: 10 / year
- Residents: 3 / year
- Resident in Laboratory Animal medicine: 1 / year

That makes about 8.6% (14/163) of a whole class.

**12.3: POSTGRADUATE RESEARCH PROGRAMMES**

The Veterinary Faculty organises and participates in several postgraduate research programs. Since the PhD education is under the responsibility of the Departments,

usually each Department organises one or more of these programs. Actually, there are three PhD programs which are under the responsibility of the main Departments, and which are mostly imparted by the academic staff of these Departments. The Inter-Faculty Departments Units mostly participate in the PhD programs organized by their own Departments.

The organization of the postgraduate programs is as follows:

- Proficiency in Research ("*Suficiència Investigadora*"): The program is divided in two parts. One of them is a teaching program, where the student must take and pass several courses from his/her PhD program 200 h (Diploma of Advanced Studies, D.E.S.E.). The other part of the program is to carry out an experimental research project ("Master") under the supervision and direction of one of the teachers of the Department holding a PhD, and to present a report summarising the results and conclusion of the research project. At the end of these two periods, the student must defend his/her work in a public session before of a Commission formed by teachers who are specialized in the corresponding discipline. All this period usually takes around two years for a full time student.

- PhD degree: The student must develop a research project under the supervision and direction of one of the teachers of the Department. This period usually takes at least two years for full time students already holding a master degree.

Table 12.3. **Postgraduate research training programmes**. Academic year 2002-03

| | Duration of training | Number enrolled to the courses (Full time) | Number enrolled to the research project |
|---|---|---|---|
| **(a) Masters Level / Diploma of Higher Education** | | | |
| Veterinary Medicine and Animal Health (Dept. Animal Medicine and Surgery + Dept. Animal Health and Anatomy) | 2 years | 31 | 22 |
| Animal Production (Dept. Animal and Food Science) | 2 years | 19 | 18 |
| Food Science (Dept. Animal and Food Science) | 2 years | 16 | 6 |
| | | | |
| Biochemistry and Molecular Biology * (Dept. Biochemistry and Molecular Biology) | 2 years | 5 (total: 52) | 5 (total: 30) |
| Biology ***** (Dept. Biology) | 2 years | 4 (total: 25) | 4 (total: 26) |
| Biotechnology * (Dept. Biochemistry and Molecular Biology) | 2 years | 3 (total: 19) | 3 (total: 8) |
| Cell Biology * (Dept. Cell Biology, Physiology and Immunology) | 2 years | 0 (total: 15) | 0 (total: 17) |
| Pharmacology * (Dept. Pharmacology) | 2 years | 2 (total: 25) | 0 (total: 6) |
| Neurosciences * (Dept. Cell Biology, Physiology and Immunology) | 2 years | 4 (total: 40) | 3 (total: 18) |

* Number of postgraduate students from the Veterinary Faculty enrolled to this program (in brackets: number of enrolled students from all faculties of the UAB).

| **(b) PhD level** | |
|---|---|
| Veterinary Medicine and Animal Health (Dept. Animal Medicine and Surgery Dept. Animal Health and Anatomy) | 4 years |
| Animal Production (Dept. Animal and Food Science) | 4 years |
| Food Science (Dept. Animal and Food Science) | 4 years |
| | |
| Biochemistry and Molecular Biology (Dept. Biochemistry and Molecular Biology) | 4 years |
| Biology (Dept. Biology) | 4 years |
| Biotechnology (Dept. Biochemistry and Molecular Biology) | 4 years |
| Cell Biology (Dept. Cell Biology, Physiology and Immunology) | 4 years |
| Pharmacology (Dept. Pharmacology) | 4 years |
| Neurosciences (Dept. Cell Biology, Physiology and Immunology) | 4 years |

Courses belonging to the Postgraduate programs mentioned above which are taught by Veterinary Faculty staff:

| Course | Credits |
|---|---|
| **Courses of Basic Science PhD programs given by staff from the Veterinary Faculty** | |
| Yeast biochemistry and molecular biology | 3 |
| Transgenic animals and gene therapy | 3 |
| Molecular basis of biological signal transduction | 3 |
| Molecular and cellular biology of cancer | 3 |
| Aquaculture and environment | 3 |
| Mammal biology | 3 |
| Fish pathology | 3 |
| Documental sources for zoological research. | 2 |
| Pharmacological basis of chemical neurotransmission | 3 |
| Immunopharmacology. | 2 |
| Introduction to plant toxicology | 3 |
| Methods of pharmacological research | 3 |
| Principles of toxicology | 3 |
| Control of digestive function: from intestine to brain and from cell to clinics | 4 |
| Pharmacology and physiology of ionic channels | 3 |
| Autonomous nervous system and visceral regulation | 3 |

| **Animal Health and Medicine PhD Program** | |
|---|---|
| **Option A: Animal Medicine** | |
| Veterinary neuropathology | 3 |
| Veterinary odontology | 2 |
| Animal reproduction biotechnology | 3 |
| Neurohistological techniques | 4 |
| Introduction to research in ophthalmology | 2 |
| Small animals orthopaedics | 2 |
| Clinical anatomy applied to small animal orthopaedics | 2 |
| Exploration of exotic and wild animals | 3 |
| Sperm function and semen quality analysis | 4 |
| Complementary diagnostic methods | 4 |
| Diagnostic techniques applied to animal cells | 4 |
| Compared haematology | 3 |
| Veterinary dermatopathology | 1 |
| Animal identification and control | 3 |
| Applied statistical methods | 4 |
| History of veterinary | 4 |
| How to write a scientific article | 3 |
| | |
| **Option B: Animal Health** | |
| Anatomy of farm animals | 2 |
| Angiogenesis and vasculogenesis | 1,5 |
| Applications of molecular biology to diagnosis of transmitted diseases | 3 |
| How to write a scientific article | 3 |
| Diagnosis in clinical mycology | 3 |
| Diagnosis in clinical bacteriology | 3 |
| Diagnostic on virology | 2 |
| Diagnosis in parasitology | 1 |
| Vector transmitted diseases epidemiology | 3 |
| Veterinary immunology | 3 |
| Zoonosis | 3 |
| Epidemiological analysis | 3 |
| Mycotoxins and mycotoxicosis | 4 |

| **Animal Production PhD Program** | |
|---|---|
| Transgenic animals in animal breeding | 3 |
| Analytical methods for food nutrition value determination | 4 |
| Animal identification and control | 3 |
| Molecular techniques for gene variability determination | 3 |
| Introduction to the study of graze ecosystems | 3 |
| Theoretical and practical course on experimental methods and techniques for animal nutrition | 5 |
| Animal genomics | 3 |
| Conservation of genetic animal resources | 4 |
| Applied nutrition for monogastric animals and pets | 3 |
| Ruminant nutrition | 4 |
| Ecological agriculture and husbandry | 3 |
| Advanced methods for animal breeding | 3 |
| Animal reproduction biotechnology | 3 |

| | |
|---|---|
| Feeding behaviour. Applications to animal production | 3 |
| How to write a scientific article | 3 |
| Applied statistical methods | 4 |
| Agriculture politics and farm structure transformation | 3 |
| In vitro production of farm animal embryos | 3 |
| Lipid utilization in animal nutrition | 3 |

| **Food Science PhD Program** | |
|---|---|
| Meat industry autocontrol | 3 |
| Food biotechnology | 2 |
| How to write a scientific article | 3 |
| Cheese and fermented milk | 4 |
| Fish and fish-derived products hygiene and control | 4 |
| Enology fermentations | 3 |
| Food microbiology laboratory and risk assessment methodology | 4 |
| Wine and vineries marketing strategies | |
| Analytical methods for food nutrition value determination | 4 |
| Applied statistical methods | 4 |
| Scientific data process | 3 |
| Fermentation processes in food production | 3 |
| Functional properties of food | 3 |
| Colloidal systems in food | 3 |
| Food microbiology rapid techniques | 4 |
| Molecular techniques for gene variability determination | 3 |

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.

(I) Students do not require a salary, although the most usual for postgraduate students is to have a fellowship (from institutions or from a research grant/project).

(II) Of the 163 students graduating in 2002-03, 32 entered postgraduate programmes on that year (19.6%). However, this calculation can be an overestimation because admittance to the postgraduate programme does not register the year in which the student finished the degree. Thus, in this calculation we are unwillingly including students graduate before 2002-03.

## 2. COMMENTS

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

The number of postgraduate diplomas and PhD degrees defended at the Veterinary Faculty which have been directed and supervised by teachers at the establishment are shown in table IX.

| | Master | | | | PhD Program | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001 | 2002 | 2003 | 2004 | 2001 | 2002 | 2003 | 2004 |
| Department of Animal Medicine and Surgery | 1 | 11 | 2 | 4 | 2 | 5 | 4 | 5 |
| Department of Animal Health and Anatomy | 2 | 7 | 3 | 10 | 1 | 4 | 4 | 4 |
| Animal Production | 6 | 13 | 3 | 10 | 7 | 6 | 4 | 4 |
| Food Science | 4 | 9 | 4 | 6 | 2 | 4 | 6 | 3 |
| Physiology Unit | - | 1 | 4 | - | 1 | 3 | 4 | - |
| Biochemistry Unit | 5 | 4 | 4 | 2 | 1 | 0 | 3 | 2 |
| Biology Unit | - | 1 | - | 2 | - | 1 | - | - |
| Total | 18 | 46 | 20 | 34 | 14 | 23 | 25 | 18 |

**Table IX.** Number of students obtaining a Master or a PhD degree.

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

Sixty-eight percent of the students enrolling in the Animal Health and Medicine and Animal production and Food Science are veterinarians. At the Inter-Faculty Department Units, the percentage of postgraduate students who are veterinarians is 44%.

Quality of the Postgraduate Programs

Postgraduate research programs have recently been submitted to a quality control program and the MEC has given a “Mention of Quality” for those programs that fulfil a series of requirements. We have to mention that all the Postgraduate Research Programs in our Faculty have deserved this qualification:

- Animal Medicine and Health
- Animal Production
- Food Science

Basic Science Programs that have the participation of academics from our Faculty have deserved also this mention:

- Biochemistry and Molecular Biology
- Cell Biology
- Pharmacology
- Neuroscience

Another positive consideration is the high number of foreign students who enter these programs and receive their master or PhD degree.

An important problem of postgraduate programs is that there is no clear policy about their organization and structure. That means that, in many occasions, the repertoire of courses depends on the willingness of individuals and, in consequence, some crucial aspects may lack in the programme. This situation is worsened because of the lack of financial support and academic recognition for teachers. In addition, constant changes in the laws defining postgraduate education have been a burden. A new law will probably be dictated in 2005.

## 3. SUGGESTIONS

All these problems led us to suggest the following approaches:

a) To improve the organization, coherence of the programs and interaction between teachers involved in different postgraduate programs. This is the responsibility of the Departments.

b) To improve recognition of the academic efforts of teachers participating in postgraduate education. This is the responsibility of the university.

c) To improve the financial support to postgraduate courses. This objective may be now at least partially achieved because all our programs were awarded a “Mention of Quality” that implies some additional funds, mostly to invite professors or specialists from other institutions or centres.

# Chapter 13 - RESEARCH

## 1. FACTUAL INFORMATION

| Indicate the involvement of undergraduate students in research, including the time spent, percentage of students involved and outcome required. |
|---|

There are three main pathways for undergraduate students to get involved in the research topics developed in our Faculty:

- "Practical work" ("Treball pràctic"): As a part of free choice subjects, students may join University Departments, Scientific Services or external institutions to improve their practical expertise. The teaching load for the student is 180h (6 credits in the curriculum) and it may be taken any time during the year, including summer vacation, but just once during the curriculum. This practical work is always undertaken under the responsibility of an academic tutor, even in the case where it is carried out in an external institution. Students must present at the end of the stage a final memory with a description of the project. The academic tutor must also present an informed report on the development of the work and the achievements of the student, who gets a qualification, based on the same criteria than regular courses.

  Table X represents the amount of students and teachers involved in this project during the last two years:

| | **Students involved** | **Teachers involved** |
|---|---|---|
| 1r semester 2002-03 | 18 | 12 |
| 2n semester 2002-03 | 31 | 22 |
| 1r semester 2003-04 | 45 | 22 |
| 2n semester 2003-04 | 48 | 29 |

**Table X.** Number of students and teachers involved in "Practical Work"

- "Fellowships for Collaboration in University Departments" ("*Beques de col·laboració*"): students in the last year of their curriculum may apply for this fellowship program, sponsored by the Spanish Ministry of Education. The goal is to collaborate with a research project in a University Department. Those

fellowships are conceded on the basis of academic curriculum of the student and interest of the research project and the student gets a moderate stipend (2000 €/year approx). The student must dedicate three hours per day to this collaboration. Twenty of these fellowships were awarded in the academic year 2002/03 and eleven in 2003/04.

- Voluntary work: Students may apply for a voluntary collaboration with research projects at the School Departments, with no recognized credits.

## 4. COMMENTS

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

The "Practical Work" is offered to all students that and gives an opportunity to be involved in a scientific project. The topics of these projects are varied, ranging from very basic scientific research in basic departments to specialized collaboration with animal production and clinical departments in all their branches. On the other hand, students usually do not have enough free time to get themselves properly involved in this kind of work.

## 3. SUGGESTIONS

| Will students be given more opportunity to participate in research activities?<br>If so, how will this be done? |
|---|

We believe that students have opportunities to participate in research: they may start with the "Practical Work", apply for a fellowship and, when graduated, participate in a postgraduate program. Research is very active in all the Departments in our School, giving a wide range of possibilities to students. Data on the funding for research projects at the Veterinary Faculty during the last four years is shown in figure VIII.

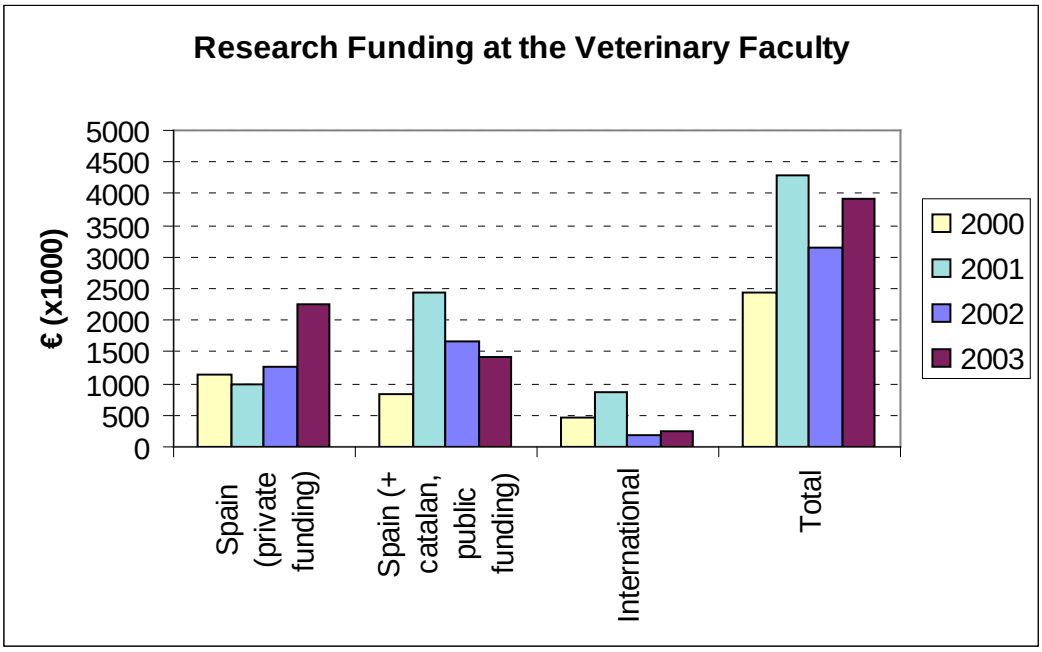



**Figure VIII.** Research Funding at the Veterinary Faculty.

The number of PhD Thesis and Master Degrees presented at the Veterinary Faculty for the last years is also very important (see Chapter 12):

Anyway, whereas they are under-graduate, usually their time is fulfilled with academic obligations and it is difficult for them to dedicate to research. A possibility that may be studied in the next future is to create a *research track* in the curriculum

## Annex 1. PROGRAM SCENARIO

Social-economic and cultural environment: Catalonia is one of the 17 autonomic regions of Spain. It is located in the North East of the Iberian Peninsula. North border is France and the Mediterranean Sea is the eastern border. Territory size is 31,896 $Km^2$ (6.3% of Spain) and population is 6,794,000 (15,9% of Spain), of these more than four million live in Barcelona and its Metropolitan area. Foreign immigration accounts for 4.4% of the population. Regarding cultural indicators, illiteracy rate is 2.3% and the proportion of people holding a university degree is 12.8%.

Catalonia Gross Income (GI) is about 117,000 million €, a value that accounts for 18.7% of the Spanish GI. *"Renta per capita" is* about 20,444 €. Primary sector represents 1.8% of the Catalan GI, secondary sector stands for 36.3% and the tertiary sector accounts for 62.0%. Livestock accounts for some 59,6% of the agricultural sector output. Regarding this, Catalonia accounts for 36% of the national swine production, 28% of the spanish poultry production and represents a lesser proportion of other livestock areas**.**

| Agriculture* | Catalunya | Spain | UE |
|---|---|---|---|
| Cattle | 690 | 6,360 | 82,412 |
| Sheep | 871 | 20,989 | 98,747 |
| Goat | 72 | 2,743 | 12,297 |
| Swine | 7,965 | 22,079 | 124,454 |
| Poultry | 51,138 | 182,446 | 4,379,344 |

* Thousands of heads

# Figures of Catalonia 2004

Generalitat de Catalunya
Government of Catalonia

## TERRITORY 2002

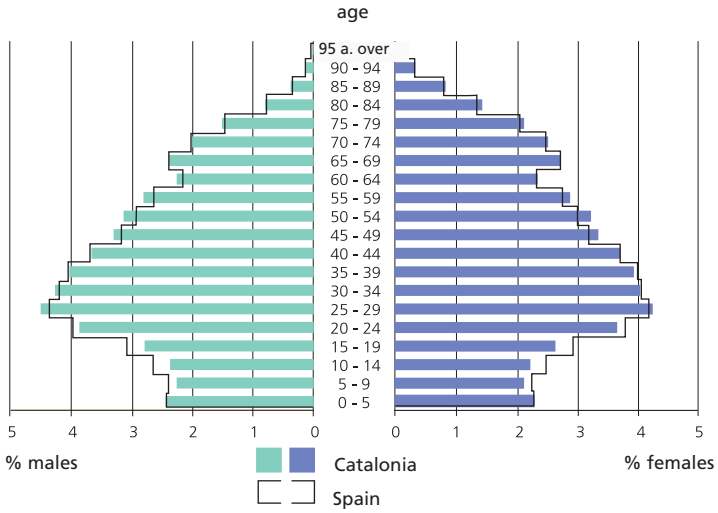
| | Catalonia | Spain | EU-15 |
|---|---|---|---|
| **Area** (1.000 km²) | **32** | **506** | **3 157** |
| cropland (%) | 28,6 | 36,9 | 28,3 |
| grassland (%) | 15,9 | 21,9 | 15,7 |
| woodland (%) | 43,3 | 32,8 | 43,3 |
| water (%) | 1,0 | 1,2 | 3,7 |
| artificial land (%) | 6,7 | 4,2 | 4,8 |
| others (%) | 4,5 | 3,0 | 4,2 |

## POPULATION 2002

| | Catalonia | Spain | EU-15 |
|---|---|---|---|
| **Density** (inh/km²) | **210** | **84** | **121** |
| **Population** (1.000) (1) | **6 704** | **42 717** | **379 483** |
| males (%) | 49,4 | 49,2 | 48,9 |
| females (%) | 50,6 | 50,8 | 51,1 |
| **Structure** | | | |
| <20 years (%) | 19,2 | 20,5 | 22,9 |
| 20-39 years (%) | 32,6 | 32,7 | 29,5 |
| 40-59 years (%) | 26,1 | 25,2 | 25,9 |
| 60-79 years (%) | 18,0 | 17,7 | 18,0 |
| ≥80 years (%) | 4,1 | 3,9 | 3,7 |
| **Net migration** (2) | **19,0** (3) | **5,6** | **2,6** |
| **Natural increase** (2) | **1,7** | **1,2** | **0,8** |
| **Total increase** (2) | **20,7** | **6,8** | **3,4** |
| **Birth rate** (2) | **10,6** | **10,1** | **10,6** |
| **Children per woman** | **1,33** | **1,26** | **1,47** |
| **Marriage rate** (2) | **4,8** | **5,1** | **4,8** |
| **Divorce rate** (2) (4) | **1,3** | **0,9** | **1,9** |
| **Death rate** (2) | **8,9** | **8,9** | **9,8** |
| **Life expectancy** (years) | | | |
| males | 76,9 | 75,7 | 75,5 |
| females | 83,4 | 83,1 | 81,6 |

(1) 1/01/2003.
(2) Per 1.000 inhabitants.
(3) Estimation.
(4) 2001

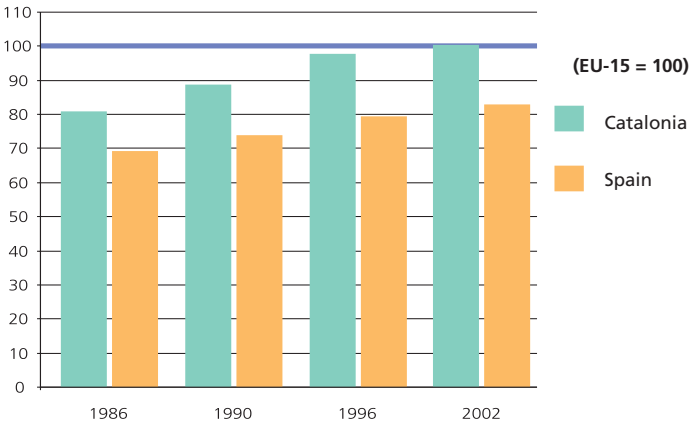
## POPULATION STRUCTURE 2001




## MACROECONOMIC AGGREGATES 2002

| | Catalonia | Spain | EU-15 |
|---|---|---|---|
| **Gross domestic product mp** (millions EUR) | **131 321** | **696 208** | **9 170 420** |
| **Gross domestic product per inhabitant** (EUR) | **20 444** | **16 898** | **24 060** |
| **Gross value added** (million EUR) | **117 481** | **629 434** | **8 475 548** |
| agriculture (%) | 1,7 | 3,4 | 2,0 |
| industry (%) | 28,1 | 20,1 | 21,5 |
| construction (%) | 8,2 | 9,6 | 5,5 |
| services (%) | 62,0 | 66,9 | 71,0 |

## GDP PER INHABITANT (PURCHASING POWER PARITY)




## CONSUMER INDICATORS 2002

| | Catalonia | Spain | EU-15 |
|---|---|---|---|
| **ICP. Annual variation** (%) (1) | **3,5** | **3,0** | **2,0** |
| **Electricity consumption per inhabitant** (kW/h) | **6 604** | **5 602** | **7 083** |
| **Primary energy consumption** (1.000 toe) | **22 716** (2) | **127 861** | **1 392 072** |
| coal (%) | 1,2 | 18,2 | 15,1 |
| oil and petroleum products (%) | 51,8 | 52,0 | 41,6 |
| natural gas (%) | 17,4 | 15,9 | 25,1 |
| nuclear energy (%) | 26,8 | 11,9 | 15,8 |
| electricity (%) | 2,7 | 1,9 | 2,1 |

| | Catalonia | Spain | % Cat./Spain |
|---|---|---|---|
| **Vehicles registrations** (1.000) | **294** | **1 770** | **16,6** |
| private cars (%) | 77,2 | 79,6 | 16,1 |
| load and transport (%) | 16,6 | 16,8 | 16,4 |
| motorcycles (%) | 6,2 | 3,6 | 28,8 |
| **Cement consumption** | | | |
| total (1.000 mt) | 6 098 | 44 120 | 13,8 |
| per inhabitant (kg) | 949 | 1 071 | - |
| **Completed dwellings** | **66 630** | **519 686** | **12,8** |
| public/institutional (%) | 7,6 | 7,5 | 13,0 |
| private (%) | 92,4 | 92,5 | 12,8 |

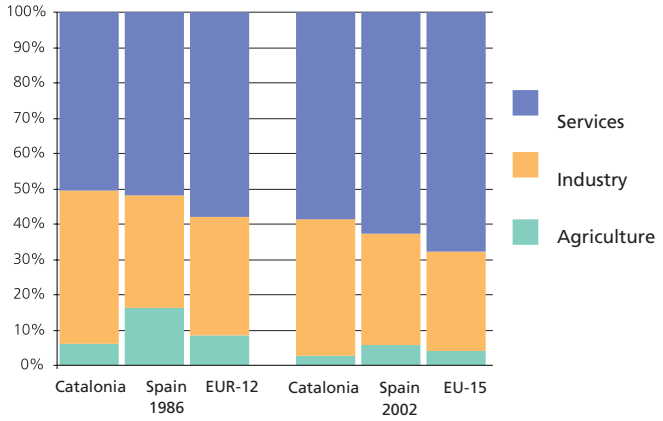
(1) 2003
(2) 2000

## LABOUR MARKET 2002

| | Catalonia [1] | Spain [1] | EU-15 [2] |
|---|---|---|---|
| **Active population** (1.000) | **3 050** | **18 267** | **176 427** |
| **Activity rate** (%) | **57,7** | **53,8** | **56,4** |
| males (%) | 69,5 | 66,7 | 65,8 |
| females (%) | 46,6 | 41,7 | 47,6 |
| **Employment** (1.000) | **2 769** | **16 241** | **162 974** |
| agriculture (%) | 2,6 | 5,9 | 4,0 |
| industry and construction (%) | 38,6 | 31,3 | 28,2 |
| services (%) | 58,8 | 62,7 | 67,8 |
| **Unemployment rate** (%) | **9,2** | **11,1** | **7,6** |
| males (%) | 6,8 | 7,7 | 6,9 |
| females (%) | 12,7 | 16,3 | 8,6 |
| <25 year old (%) | 18,6 | 21,5 | 14,6 |

(1) II quarter data.
(2) EU has been calculated for the population 15 year old and over; Catalonia and Spain for the 16 year old and over.

## DEVELOPMENT OF EMPLOYMENT BY SECTORS




## AGRICULTURE 2002

| | Catalonia | Spain | EU-15[1] |
|---|---|---|---|
| **Agricultural output** (milions EUR) | **3 633** | **37 440** | **282 407** |
| crop (%) | 37,1 | 61,3 | 53,2 |
| animal (%) | 59,6 | 34,6 | 43,5 |
| **Meat production** (1.000 t) | **1 545** | **5 537** | **34 685** |
| bovines (%) | 8,4 | 12,2 | 20,9 |
| pigs (%) | 65,4 | 56,9 | 50,6 |
| sheep and goats (%) | 1,9 | 4,6 | 2,9 |
| poultry (%) | 22,5 | 24,1 | 25,3 |
| **Milk production** (1.000 t) | **673** | **5 994** | **114 887** |

(1) 2001

## INDUSTRY 2002

| | Catalonia | Spain | % Cat./Spain |
|---|---|---|---|
| **Turnover** (million EUR) | **112 534** | **447 234** | **25,2** |
| energy and water (%) | 6,8 | 14,0 | 12,3 |
| mining (%) | 12,9 | 17,5 | 18,6 |
| chemicals (%) | 15,7 | 8,5 | 46,6 |
| machinery (%) | 26,4 | 23,6 | 28,2 |
| food products (%) | 14,9 | 16,7 | 22,5 |
| leather and textile (%) | 7,3 | 5,0 | 36,6 |
| paper and publishing (%) | 7,5 | 6,0 | 31,6 |
| others (%) | 8,5 | 8,9 | 23,9 |

## FINANCES 2002

| | Catalonia | Spain | % Cat./Spain |
|---|---|---|---|
| **Credit institutions. Local units** | **7 189** | **38 673** | **18,6** |
| banks (%) | 30,5 | 36,4 | 15,6 |
| savings banks (%) | 67,7 | 52,6 | 23,9 |
| **Deposits** (million EUR) | **103 964** | **592 860** | **17,5** |
| banks (%) | 28,2 | 41,2 | 12,0 |
| savings banks (%) | 70,4 | 52,2 | 23,7 |

## TOURISM 2002

| | Catalonia | Spain | % Cat./Spain |
|---|---|---|---|
| **Tourist establishments** | **3 916** | **22 786** | **17,2** |
| hotels (%) | 66,6 | 67,0 | 17,1 |
| rural tourism (%) | 24,3 | 27,8 | 15,0 |
| campsites (%) | 9,1 | 5,2 | 30,4 |
| **Bed-places** (1.000) | **494 754** | **2 140 036** | **23,1** |
| hotels (%) | 48,7 | 62,2 | 18,1 |
| rural tourism (%) | 1,6 | 2,6 | 14,2 |
| campsites (%) | 49,7 | 35,2 | 32,6 |
| **Visitors** (1.000) | **22 669** | **80 024** | **28,3** |
| airports (%) | 20,3 | 43,7 | 13,2 |
| roads (%) | 75,3 | 51,9 | 41,1 |
| others (%) | 4,4 | 4,4 | 28,4 |

## EXTERNAL TRADE 2002

| | Catalonia | Spain | % Cat./Spain |
|---|---|---|---|
| **Imports** (million EUR) | **51 219** | **172 789** | **29,6** |
| EU-15 (%) | 63,5 | 64,0 | 29,4 |
| rest of Europe (%) | 6,9 | 7,2 | 28,6 |
| North America (%) | 3,4 | 4,6 | 22,4 |
| Central and South America (%) | 3,0 | 4,3 | 20,9 |
| Asia (%) | 17,2 | 13,1 | 38,9 |
| Africa (%) | 5,5 | 6,6 | 24,9 |
| others (%) | 0,4 | 0,4 | 34,2 |
| **Exports** (million EUR) | **36 207** | **130 814** | **27,7** |
| EU-15 (%) | 70,1 | 71,3 | 27,2 |
| rest of Europe (%) | 9,1 | 7,7 | 32,9 |
| North America (%) | 3,9 | 4,9 | 21,9 |
| Central and South America (%) | 5,9 | 5,4 | 30,3 |
| Asia (%) | 6,4 | 5,8 | 30,4 |
| Africa (%) | 3,7 | 3,7 | 28,1 |
| others (%) | 0,8 | 1,2 | 18,7 |

## TRANSPORT 2002

| | Catalonia | Spain | % Cat./Spain |
|---|---|---|---|
| **Toll motorways** (km) | **651** | **2 386** | **27,3** |
| **Motorways** (km) | **550** | **9 020** | **6,1** |
| **Roads** (km) | **10 825** | **152 733** | **7,1** |
| **Railways** | | | |
| passengers (1.000) | 169 613 | 637 500 | 26,6 |
| goods (1.000 t) | 5 349 | 31 600 | 16,9 |
| **Ports** | | | |
| merchant ships | 12 238 | 150 002 | 8,2 |
| GT (1.000) | 184 341 | 1 207 852 | 15,3 |
| goods (1.000 t) | 64 652 | 378 062 | 17,1 |
| **Airports** | | | |
| aircraft | 276 025 | 1 495 355 | 18,5 |
| passengers (1.000) | 22 457 | 141 240 | 15,9 |

## EDUCATION year 2003/04

| | Catalonia | Spain | EU-15 (1) |
|---|---|---|---|
| **Students** (1.000) (2) | **1 253** | **8 325** | **85 060** |
| pre-primary education (%) | 20,0 | 16,1 | 12,8 |
| primary education (%) | 29,1 | 29,9 | 28,0 |
| secondary education (%) | 33,2 | 36,3 | 44,3 |
| tertiary (%) | 17,7 | 17,7 | 15,0 |
| **University. Students** (1.000) (2) | **222** | **1 476** | **12 563** |
| humanities (%) | 10,6 | 9,3 | : |
| social science (%) | 46,5 | 48,0 | : |
| science (%) | 6,1 | 7,3 | : |
| healht (%) | 8,8 | 7,9 | : |
| engineering and architecture (%) | 27,3 | 27,5 | : |

(1) 1999/00 (2) Provisional data.

## HEALTH 2002

| | Catalonia | Spain | EU-15 |
|---|---|---|---|
| **Hospital beds** (per 1.000 inhabitants) | **4,9** | **3,7** (2) | **6,3** (3) |
| **Doctors** (per 1.000 inhabitants) | **4,7** | **4,3** | **3,6** (3) |
| **Dentists** (per 1.000 inhabitants) | **0,5** | **0,5** | **0,6** (4) |
| **Pharmacists** (per 1.000 inhabitants) | **1,4** | **1,3** | **0,7** (5) |
| **Infant mortality rate** (per 1.000 live births) | **3,3** | **3,4** | **4,5** |
| **Main causes of death** (per 100.000 inhabitants) (1) | | | |
| circulatory system | 287,7 | 306,3 | 406,2 |
| neoplasia | 250,7 | 240,6 | 265,2 |
| transport accidents | 13,5 | 14,0 | 11,2 |

(1) 2001 (2) 2000 (3) 1999 (4) 1998 (5) 1993

## BUDGET 2003

**Government of Catalonia. Expenditure** (million EUR) **16 081**

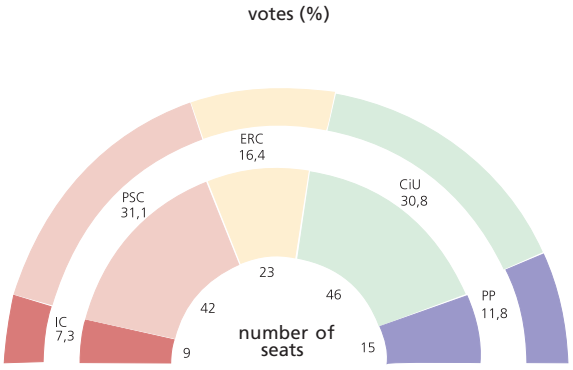
| | | | |
|---|---|---|---|
| Parliament (%) | 0,2 | Employment, Industry, | |
| Presidential Department (%) | 1,5 | Commerce and Tourism (%) | 2,6 |
| Home Affairs and Inst. Relations (%) | 1,0 | Justice and the Interior (%) | 6,5 |
| Economy and Finance (%) | 0,3 | Social Welfare and Family Affairs (%) | 3,7 |
| Education (%) | 18,1 | Environment (%) | 1,0 |
| Culture (%) | 1,5 | Universities, Research and | |
| Health and Social Security (%) | 34,2 | Information Society (%) | 4,4 |
| Town and Country Planning | | Public debt (%) | 6,2 |
| and Public Works (%) | 5,3 | Local entities (%) | 10,7 |
| Agriculture, Livestock and Fisheries (%) | 1,3 | others (%) | 1,5 |

## EVOLUTION OF INDICATORS

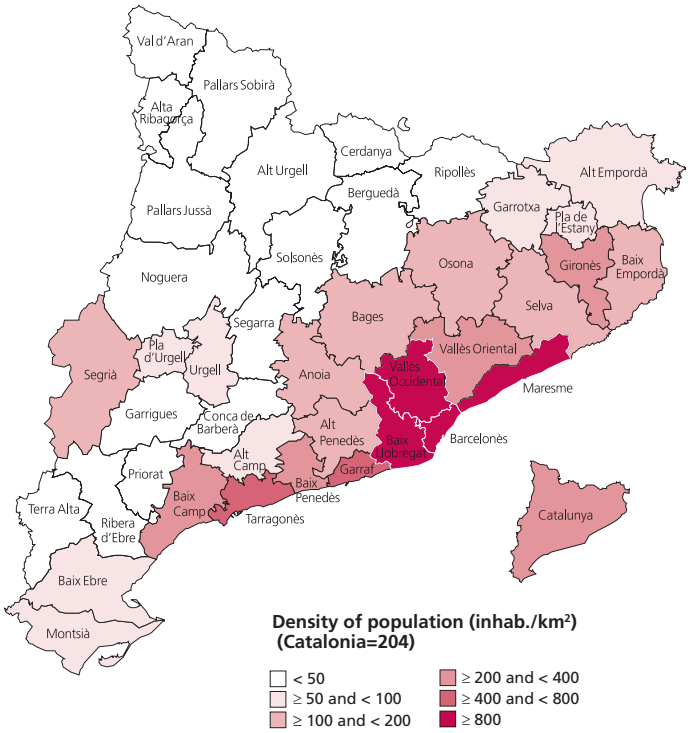
| | 1980 | 1991 | 2002 |
|---|---|---|---|
| Population density (inhab./km²) | 187 (1) | 190 | **210** |
| Population (1.000) | 5 956 (1) | 6 059 | **6 704** (2) |
| <15 years (%) | 25,0 (1) | 17,8 | **14,0** |
| 15-64 years (%) | 64,0 (1) | 67,9 | **68,7** |
| ≥65 years (%) | 11,0 (1) | 14,3 | **17,3** |
| Birth rate (per 1.000 inhabitants) | 13,4 | 9,3 | **10,6** |
| Infant mortality rate (per 1.000 live births) | 11,3 | 6,7 | **3,3** |
| GDP (million EUR) | 17 309 | 61 865 | **131 321** |
| GDP per inhabitant (EUR) | 2 909 | 10 190 | **20 444** |
| Electricity consumption per inhabitant (kW/h) | 2 905 | 4 294 | **6 604** |
| Cement consumption per inhabitant (kg) | 392 | 715 | **949** |
| Vehicles (per 1.000 inhabitants) | 370 | 504 | **657** |
| Vehicles registrations (1.000) | 147 | 240 | **294** |
| Active population (1.000) | 2 249 | 2 533 | **3 065** |
| Activity rate (%) | 51,0 | 52,5 | **57,9** |
| Employment (1.000) | 1 940 | 2 223 | **2 770** |
| Unemployment rate (%) | 12,6 | 12,2 | **9,6** |
| Credit institutions. Local units | 4 391 | 6 850 | **7 189** |
| Deposits (million EUR) | 14 863 | 54 033 | **103 964** |
| Visitors (1.000) | 11 830 | 16 547 | **22 669** |
| Hotel bed-places (1.000) | 168 | 189 | **240** |
| Exports (million EUR) | 2 073 | 8 729 | **36 207** |
| External trade ratio (Exp. + Imp./GDP) (%) | 34,8 | 42,6 | **66,6** |
| University. Students (1.000) | 96 | 165 | **225** |
| Inhabitants per doctor | 398 | 245 | **213** |
| Municipal waste (kg/inh./day) | 0,8 (3) | 1,2 | **1,6** |
| Waste water treatment (1.000 m³/day) | : | 1 056 (4) | **2 368** |
| Protected areas (km²) | 303 | 1 816 (5) | **6 523** |

(1) 1981 (2) 1/01/2003. (3) 1984 (4) 1992 (5) 1990

## PARLIAMENT OF CATALONIA 2003



## DENSITY OF POPULATION BY COUNTIES (COMARQUES) 2001




Edited by:

**Statistical Institute of Catalonia**
http://www.idescat.net

**Generalitat de Catalunya** is the national selft-government of Catalonia made up of the three institutions: the Parliament, the President and the Executive Council or Goverment.

Sources:
Generalitat de Catalunya, Institut d'Estadística de Catalunya, Instituto Nacional de Estadística, ministries, Banco de España and Eurostat.

Updated: 15/04/2004

**Annex 2.** Software used in teaching

| Topic | Type of material | Title |
|---|---|---|
| | | |
| Clinical Anatomy | CD | The dog brain. Sections and magnetic resonance |
| | | The dog brain. Picture Atlas. |
| | | |
| Special General Pathology (Anatomia Patologica Especial) | Software | The Virtual Necropsy |
| | | |
| Biometry | Software | SAS |
| | | |
| Biochemistry II | Software | ProteinLab (protein purification simulator) (A.G. Booth, U. Leeds) |
| | Software | Polymerase Chain Reaction (PCR) (Cold Spring Harbour Laboratory) |
| | Software | BioROM (protein and nucleic acids structure, S. E. Bioquímica) |
| | | |
| Biochemistry II | Software | Gluconeogenesis (J. Bardshaw/G. McConnell, U. Edinbourgh) |
| | | |
| Molecular Biochemistry and Genetics | Webpage | Several websites |
| | | |
| Veterinary Ecology | | Excel |
| | | |
| Epidemiology | Software | Reed-Frost (simulation of epidemics)(developed by the teacher) |
| | Software | EPISERA (serologic epidemiology)(developed by the teacher himself) |
| | Software | Epi-Info (http://www.cdc.gov/epiinfo) (epidemiological data analysis) |
| | Software | WinEpiscope (http://infecepi/unizar.es/pages/ratio/soft_sp.htm) |
| | | |
| Pharmacology I | Software | Medicines: The discovery Process |
| | | |
| Pharmacology II | Software | Cardiolab (Cardiovascular pharmacology) |
| | Software | Neuromuscular Junction |
| | Software | Neuromuscular pharmacology |
| | | |
| Physiology I | Webpage | White blood cell count (developed by the teacher himself) |
| | Software | Neuron action potential |
| | Software | Circadian rythms |
| | Software | Electrocardiogram simulator |
| | Software | Arterial blood pressure simulator |
| | | |
| Genetics | Software | Emach |
| | | Cowgame |
| | | Qbasic programs |
| | | |
| Histology | Webpage | The Virtual Microscope (developed by the teacher himself) |
| | | |

| | | |
|---|---|---|
| Mathematics | Software | Minitab |
| | | |
| Preventive Veterinary Medicine | Software | Bioseguretat (developed by the teacher himself) |
| | Software | Simpatic (developed by the teacher himself) |
| | Software | HYOS (Aujeszky simulation)(developed by the teacher himself) |
| | Webpage | http://www.oie.int/eng/en_index.htm |
| | | |
| Microbiology I | Webpage | Microscopy Images (developed by the teacher himself) |
| | | |
| Microbiology II | Webpage | Microscopy Images (developed by the teacher himself) |
| | | |
| Micology | Webpage | Microscopy Images (developed by the teacher himself) |
| | | |
| Neurology | Video | Clinical cases (developed by the teacher himself) |
| | | |
| Nutrition I | CD | Feedstuff Microscopy (developed by the teacher himself) |
| | | |
| Nutrition II | Software | Simplex |
| | | Dairy |
| | | |
| Poultry Production | Software | Uffda |
| | | |
| Bovine Production | Software | Inration |
| | | |
| Porcine Production | Software | Inration |
| | | |
| Ovine and caprine production | Software | Inration |
| | | Uffda |
| | | |
| Fish production | Software | Uffda |
| | | |
| Production and technology of forages and compounds feeds | Software | Excel |
| | | |
| Animal Production II | Software | Excel |
| | | |
| Chemistry | Software | SPSS |
| | | |
| Technology of Reproduction | Software | Reprology / CD sperm |
| | | |
| Toxicology | Software | EPI6 |
| | Software | EPI INFO |

## GLOSSARY

| | |
|---|---|
| **ANECA** | Spanish Agency for the Evaluation of University Quality<br>*Agencia Nacional de Evaluación de la Calidad* |
| **AQU** | Catalan Agency for the Evaluation of University Quality<br>*Agencia de Qualitat Universitària* |
| **COVB** | Official Association of Veterinarians of Barcelona<br>*Col·legi Oficial de Veterinaris de Barcelona* |
| **CReSA** | Animal Health Research Centre of Catalonia<br>*Centre de Recerca en Sanitat Animal* |
| **CTA** | Commission for Teaching Affairs<br>*Comissió de Docència* |
| **DURSI** | Catalan Department for Universities, Research and Information Society<br>*Departament de Universitats, Recerca i Societat de l'Informació* |
| **EU** | European Union<br>*Unió Europea* |
| **FC** | Faculty Council<br>*Junta de Facultat* |
| **FEFS** | Farm and Experimental Fields Service<br>*Servei de Granges i Camps Experimentals* |
| **FPP** | Food Processing Plant<br>*Planta de Tecnologia dels Aliments* |
| **IRTA** | Catalan Institute for Research in Food and Agriculture<br>*Institut de Recerca i Tecnologies Agroalimentàries* |
| **LOU** | Spanish Law for Universities<br>*Ley Orgánica de Universidades* |
| **LUC** | Catalan Law for Universities<br>*Llei de Universitats de Catalunya* |
| **MAE** | Main Administrator of the Establishment<br>*Administrador de Centre* |
| **MEC** | Spanish Ministry of Education and Science<br>*Ministerio de Educación y Ciencia* |
| **SIMU** | Informatics and Multimedia Service<br>*Servei d'Informàtica i Multimedia* |
| **UAB** | Universitat Autònoma de Barcelona<br>*Universitat Autònoma de Barcelona* |

**VFR** Veterinary Faculty Regulations
*Reglament de la Facultat de Veterinària*

**VTH** Veterinary Teaching Hospital
*Hospital Clínic Veterinari*