



# **DentEd Visitation**

**Faculty of Odontology**

**University Complutense  
de**

**Madrid**

**School Visit Report**

**12<sup>th</sup> –16<sup>th</sup> February, 2000**



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**Section I**

**Visitors Comments on Curriculum**

## UNIVERSITY COMPLUTENSE DENTAL CURRICULUM (Sections 5 – 16, including Visitors' comments)

### Introduction

The current curriculum in Dentistry at the Universidad Complutense de Madrid is organised in 2 cycles, the basic cycle and the clinical cycle. The basic cycle includes the two first years and the basic subjects, the medical and paramedical topics are taught during it. The clinical cycle is divided into three years. During the third year the students acquire the basic knowledge on the merely dental subjects and the clinical abilities for the different dental and therapeutical procedures. During the 4<sup>th</sup> year, the students study the dental topics in depth and they gain access to the treatment of patients. During the 5<sup>th</sup> year the students gain access to the integral treatment of patients, summing up all the abilities learned during the previous years.

This curriculum is divided in common and compulsory University subjects that have to be fulfilled by all students, elective subjects which are chosen by the students among those offered in the different departments that appear in the Dental curriculum and open choice subjects which are those subjects the student can choose from other approved curricula that are taught at the Universidad Complutense.

This curriculum is described numbered in years. There is a detailed description of the common, compulsory and some elective subjects. Open choice subjects are not described because they do not belong to a firm curriculum. Equivalencies between the number given to each subject in this report and how subjects are organised and numbered according to the Dented guidelines can be found in the following table:

SUBJECT	Section in document	Dented-Sections
GENERAL AND ORAL MICROBIOLOGY	1.1	7.2
GENERAL EPIDEMIOLOGY AND PUBLIC HEALTH	1.2	10
GENERAL HUMAN ANATOMY	1.3.1	6.1
GENERAL BIOCHEMISTRY (PART 1)	1.3.2.	5.1
GENERAL PHYSIOLOGY	1.3.3.	6.2
GENERAL CYTOLOGY, GENERAL HISTOLOGY, ORAL HISTOLOGY	1.3.4.	6.3 / 5.2
GENERAL BIOCHEMISTRY (PART 2)	1.4.2.	5.1
INTRODUCTION TO DENTAL CLINIC	1.5	11.1 / 16.4
INTRODUCTION TO DENTAL LABORATORY	1.6	11.3
HISTORY OF THE DENTISTRY	1.7	16.3
GENERAL RADIOLOGY, PHYSIC MEDICINE AND APPLIED PHYSICS	1.8	13.2
PHARMACOLOGY	2.1	7.1
REGIONAL HUMAN ANATOMY	2.2.1.	6.1
ORAL HISTOLOGY	2.2.2.	6.3
ORAL BIOCHEMISTRY	2.2.3.	5.1
ORAL PHYSIOLOGY	2.2.4.	6.2
DENTAL MATERIALS, EQUIPMENT, INSTRUMENTATION AND ERGONOMY	2.3	11,1/11,3/16,4
GENERAL SURGERY	2.4.	8.2
GENERAL MEDICINE	2.5	8.1
ANAESTHESIOLOGY AND REANIMATION	2.6	8.3
GENERAL PATHOLOGY	2.7	7.3
PSYCHOLOGY	2.8	16.1
EAR, NOSE AND THROAT (ENT)	2.10	8.2
DERMATOLOGY AND VENEREOLOGY	2.11	8.1
GENETICS	2.12	5.3
TOPOGRAPHIC ANATOMY OF THE HEAD AND NECK	2.13	6.1
EXTENDED DENTAL BIOCHEMISTRY	2.14	5.1
APPLIED PHOTOGRAPHY	2.15	16
ORAL SURGERY	7.1	13.1
DENTAL THERAPEUTICAL PATHOLOGY I AND II	7.2	11,1/11,2
DENTAL PROSTHESIS I AND II	7.3	11,3
ORTHODONTICS I AND II	7.4	9.1
ODONTO-PAEDIATRICS I AND II	7.5	9.2
PREVENTIVE AND COMMUNITY DENTISTRY	7.6	10

PERIODONTOLOGY	8.5	12
ORAL MEDICAL PATHOLOGY	8.6	14,1
ADULT INTEGRATED DENTAL CLINIC	9.1	15,1
CHILD INTEGRATED DENTAL CLINIC	9.2	15,1
ADULT SPECIAL PATIENT INTEGRATED DENTAL CLINIC	9.3.	15,3
PAEDIATRIC SPECIAL PATIENT INTEGRATED DENTAL CLINIC	9.4	15,3
SURGICAL MAXILLO-FACIAL PATHOLOGY	9.5	13,1
LEGAL AND FORENSIC ODONTOLOGY	9.7	16,3
DENTAL EMERGENCIES	9.7	15,2
IMPLANTOLOGY	9.8	13,1
COMPLEX PERIODONTAL PROSTHESIS	9.9	12
PATHOLOGIC ANATOMY OF ORAL NEOPLASMS	9.10	14,2
COMPLEX DENTAL THERAPEUTICS	9.11	11,1

## 1.- First Year

### 1.1. GENERAL AND ORAL MICROBIOLOGY

**Prof. José Prieto Prieto.**

**Prof. Carmen Rodríguez-Avial López-Dóriga.**

#### 1. Introduction

Micro-organisms are present in the mouth creating the oral Microbiota. The knowledge of this microbiota in Health and in the mouth infectious diseases can help us to better treat and prevent them. This is the case of caries and periodontal disease that are the more prevalent infectious diseases in our society.

Furthermore, mouth is the gate for many micro-organisms that can be disseminated at distance when managing the mouth, as happens with the infectious pericarditis. On the other side, the mouth can show lesions indicating systemic infectious processes, from syphilis to HIV infection.

And to conclude, infectious diseases such as HBV and HCV Hepatitis and HIV infection can be transmitted in the Dental clinic, diseases that the dentist must know to establish the most appropriate prophylactic measurements.

#### 2. Primary Aims

- To promote the knowledge of the bacterial, viral and fungus biology, to permit the understanding of the pathogenesis of these micro-organisms and the clues for its diagnosis and treatment.
- To establish the basis for the immunological response in our body from the infectious agents and proceed to its applications in the diagnosis and prevention of the infectious diseases.
- To give the clues to control the infection.

#### 3. Main objectives

- To describe the microbial variety, its classification, its origins and its presence in multiple ecological environments.
- To describe the morphology, structure and metabolism of the prokaryote cell as well as observation and cell culture in the Clinical Microbiology laboratory.
- To decode the bacterial pathogenic mechanisms, its strategies to grow up and hurt our body.
- To describe the development and action of the anti-microbial agents as well as the micro-organisms' resistance mechanisms to avoid them.

- To introduce the infection control concept. To specify the Universal Precautions.
- To specify how the immunological, humoral or cell system recognises and eradicates the micro-organisms.
- To discern the diagnostic applications and its profit in the prophylaxis of the infectious diseases with the development of vaccinations.
- To describe specifically the bacteria that causes hurt in humans, with special dedication to the ones that produce oral infections, its diagnosis and treatment.
- To describe the viral morphology and pathogenesis.
- To describe specifically the main virus involved in oral infections, its diagnosis and treatment.
- To describe the pathogenic fungus morphology and pathogenesis.
- To describe specifically the main fungus involved in oral infections, its diagnosis and treatment.
- To strike on the knowledge of the oral microbiota, the oral ecological determiners and the formation, structure, classification and composition of the dental plaque.
- To strike on the microbiological aspects of all infectious processes related to teeth, periodontium and oral mucous membrane.

#### 4. Hours in the curriculum

40 hours theory lessons

10 hours practical lessons

The teaching is done during the 2<sup>nd</sup> period of four months.

Theoretical lessons are set in a Room at the Facultad de Odontología.

Practical lessons are done in the Microbiology laboratory at the Facultad de Medicina.

#### 5. Method of learning/teaching

All students are offered support for developing a topic related to an individual micro-organism (e.g. *Actiobacillus actinomycetemcomitans*) to be orally presented to the rest of the class members.

Photocopies of articles published in specialised journals are given to be read and discussed in the classroom.

#### 6. Assessment methods

The students have two partial eliminative evaluations of the subject. Those failing these will have a final exam in June. Those failing the June examination will have a final exam in September.

The exam includes multiple choice questions with 5 answers, only one valid, as well as specific questions with answer to be created by the student.

There is also an improvement exam, for those which pass both partial exams and want a better qualification, that consist on a topic of the program.

#### *Visitors' comments*

- *How prepared are the students to comprehend this material at such an early stage?*

## **1.2. GENERAL EPIDEMIOLOGY AND PUBLIC HEALTH**

### **Prof. Dr. Margarita Romero Martín**

#### 1. Introduction

The training in this subject is very important for the Health workers, and nowadays it is included in the new curricula used to train health professionals.

The Preventive Medicine, Public Health, and History of the Science Department has two subjects on general topics about Prevention, Epidemiology and Public Health in the first cycle, and a third subject, that study in depth the Epidemiological Method, in the second cycle of the dental course.

Likewise, two annual subjects on Health Education and Oral Cancer Prevention are taught in the post grade course.

At the Dental Faculty, the Prophylaxis, odontopaediatrics and Orthodontics Department teach Preventive and Community Dentistry in the second cycle of the undergraduate studies. This means that students first receive the general notions on Public Health care and then the specific application of these notions to the Practical Dentistry. This department also teaches postgraduate and trains students in different specialities.

To synthesise, the specific application of Public Health in Dentistry is received by the students in their second cycle, while Prevention and Public Health in general are first taught. The aim is to obtain the following objectives:

#### 2. Primary Aims of the subjects Epidemiology and Public Health, Health and Environment, and Health Education are:

To make the students know and understand the methods Public Health Care are based on, to add values and explain preventive, epidemiological, social and also educational attitudes in the community, and to acquire abilities and skills to fulfil the role they are concerned as a health officer, with private exercise of their profession, and/or as integrated members of the primary care groups which correspond to the assistance organisation in the country (this is a fact in the Autonomic community in Cataluña, with satisfactory results for the population attended as well as for the dentists themselves).

#### 3. Main Objectives in General Epidemiology and Public Health in the undergraduate curriculum:

To obtain these objectives, the program is based in thematic groups, divided into thematic units, as:

-Subject notion.

Introduction of health/illness and prevention notions, the natural history of the disease, Public Health and community health notions, the indicators for the diagnosis of Community health, general strategies of health and health education.

Objectives: To make the students distinguish the previous notions and propose health strategies according with the diagnosis of necessities they have previously established.

- Measuring tools in Public Health: Demography, Statistics and Epidemiology.

In this group, it is shown all the conceptualisation of these instruments and in the practical lessons there are exercises and problems solved in which these are essential.

Objectives: To make the students classify demographically the different populations shown. To calculate the statistics and deduce the corresponding parameters starting from the samples, evaluating the existing significance. To distinguish the different epidemiological studies shown, to obtain frequency indicators for the illness risk, as well as the power of causal associations and impact measurements, and to understand the different results of the Screening tests.

-Environment and Health.

In this group we explain the teaching about general ecology and environmental risk factors, together with laboratory practices studying the water, water supplies and subsequent hygienisation problem, as well as visits to the environmental supervision and control institutions.

Objectives: To make the students describe the ecology basic laws, and quote the contamination limits and the main contamination sources, to consult the publication of the contamination supervision and control institutions and to discern contamination parameters and water supplies control in the laboratory.

-Epidemiology of transmissible diseases.

The epidemiological chain of disease transmission and the general factors that may enhance it, as well as the general and specific prevention resources (such as environmental improvement methods, vaccination protocols and antibio-chemio-protection and Prophylaxis guidelines) are studied in this subject.

Objectives: To make the students understand the improvement indicators and particularly the disinfection indicators, to justify the general Prophylaxis protocols and above all, the specific ones, that is, the vaccinations, to distinguish the isolation, quarantine and supervision of the different transmissible diseases and know how to propose and command all the general prevention measurements available.

- Epidemiology of way of life related diseases.

To consider the importance of general life conditions and habits in illness/health processes and its prevention.

Objectives: To understand and think about the way of life related risks network, to deduce the level the way of life related diseases reach in their community, and to place bucco-dental diseases in the ranking of these diseases.

-Health systems.

The Spanish health system organisation is described in this group, the planification and health management general theory, health patterns, health services evaluation and international organisations related with health.

Objectives: To make the students distinguish between the different organisation levels in the national health service, to describe each one's competencies, to propose a bucco-dental health plan based on the different needs of each community according to the previous communitary diagnosis, calculating the priority indexes too. To describe the different health patterns of the health agencies in the developed countries and in the ones under development and to state the organisation and functions of the international agencies related with health.



#### 4. Hours in the curriculum

The subject is explained in 60 class hours, 40 hours for theoretical contents in one group, one hour a week during the first and third terms, and two hours a week during the second term; and 20 hours for practical contents. These 20 practical lessons are done in groups of 25 students during 2 hours 15 days.

#### 5. Method of learning/teaching

All the program is explained during the practical lessons, stressing particularly on the demography, statistics applied to the Public health and epidemiological method problem and exercise solving.

In the laboratory, each student proceeds to study the water problems together with the corrections unless they reach the required potabilisation conditions.

There are seminars and critical lectures of documents and rules and regulations of Public Health where, individually and in small groups, the students expose and discuss about their respective topics; with all these a progressive interiorisation is got and a maturation of the knowledge the students are acquiring.

Regarding the environment, there are guided visits to agencies such as Enresa, an enterprise in charge of the control and management of the radioactive residues, and to the Nuclear Security Organisation where the experts who welcome us enlarge the contents explained in class about this topic; we also visit one of the Residual Water Depuration Station belonging to the “*Plan de Saneamiento Integral de Madrid*”, and to the city urban solid residues treatment station.

These visits, previously dated and officially allowed, mean an extraordinary experience approaching the theory to the real life, to the general Public Health solution of problems explained in daily life, and the students are keen with them because this act of learning that is identifying them as future health officers, complement the dental contents, to the more motivated ones, giving them general knowledge they thank for when they notice its application.

#### 6. Assessment methods

There are two partial exams, not eliminative but related to the final exam (making them study the subject during the whole year and to study it again at the end); This exams are themes randomly proposed over the program and exercises like the ones done in the practical lessons. The final exam include 70 multiple choice questions, and 3 epidemiological problems, for those who pass the partial exams, or 100 multiple choice questions, and 5 problems for those who failed the partial exams.

In Epidemiology and Public Health, as in Health and Environment the students make reports during the year .

#### *Visitors' comments*

- *General epidemiology and public health would benefit by being placed later in the curriculum when students have more knowledge. The visitors considered that perhaps this course had been simply developed from an existing course for medical students, incompletely adapted to dental students' needs. They also question the relevance of the applied examples in this course.*

### 1.3. MORPHOLOGY, STRUCTURE AND FUNCTION OF THE HUMAN BODY

Common subject grouping General Anatomy, General Biochemistry (part 1) General Physiology and General Histology.

#### *Visitors' comments*

- *The grouping of these subjects together has not worked successfully. The visitors were disappointed that the potential advantage of realistic integration has not been achieved. Therefore, they are also disappointed that students experience the disadvantage of a lack of compensation between the marks achieved for the separate components of the examination. We recommend that the subjects contained in this block should be treated independently for examination purposes.*

#### **1.3.1 General Human Anatomy**

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#### 1. Introduction

The common subject General Human Anatomy is included in a common subject called Morphology, structure and function of the human body. It is taught during the two first terms in the first year, two hours a week of theoretical lessons and one hour a week of practical lessons. The locomotion system (half of the subject), stressing on the cranium, but without including the muscular and vascular systems of the face, is studied. Following this, the splanchnology (fourth part of the subject) is taught, ending with the central nervous system and some of the twelve cranial nerves (the other fourth part).

#### 2. Primary Aims

- To provide the students with an in depth knowledge of the cranium, particularly the bones of the face and the jawbone, as the basis of the clinical practice.
- To provide a basic knowledge of the structure of the human body systems and organs, enough to understand its function and the diseases that may hurt them.

#### 3. Main objectives

The students will have an adequate knowledge of:

- The constituting elements of the muscle-skeleton system, types of existing joints, and, mainly, of the cranium, the jawbone and the neck muscles.
- The cranial nerves, except trigeminum, facial, glossopharyngeal, hypoglossal and parts of vagus related to the head.
- The vascularisation of the neck, as well as the arm vessels used for intravenous route and heart rate measure.
- The nasal cavity, para-nasal sinus, pharynx, larynx, trachea, bronchial tree and lungs, thorax, diaphragm, heart and the big vessels.
- The structure of the brain hemispheres, brainstem, cerebellum and spinal cord.

- The main afferent and efferent ways to the CNS, particularly the ones related to the cranial nerves mentioned above.
- Vascularisation of the CNS and circulation of the CSF

#### 4. Hours in the Curriculum

The total number of theoretical and practical lessons in this subject is 55.

#### 5. Method of learning/teaching

This subject is planned in conventional theoretical lessons and practical lessons, where the students are induced to identify the structures previously studied using dissected pieces. The students, individually or in groups, can ask questions to the teacher 6 hours per week during the tutorial sessions.

Sometimes, small groups of students are suggested to search for information and prepare presentations on certain topics during additional seminars.

#### 6 Assessment methods

This subject is evaluated with a theoretical examination, including multiple choice questions and short answer questions (less than four minutes), and a practical exam identifying structures in dissected pieces. The theoretical exam represents 80% of the final mark. There are two partial eliminative exams during the year.

#### 7. Strengths

This subject is particularly designed for students of Dentistry, meaning that all the topics that are irrelevant for a dentist have been removed, focusing on the topics important for them.

#### 8. Weaknesses

The absence of the subject of Embryology in the present (and next curriculum) will make it difficult for students to have a good knowledge of the craniofacial development.

#### 9. Innovations and best practices

The students are divided in two theoretical groups and two practical groups. There are two teachers in charge of these, so the teaching is directed to a not very big group of students (approximately 50 per group), helping this to the rate teacher/student.

#### 10. Plan for future changes

It is being planned the possibility of performing seminars together with other subjects about global topics such as swallowing, mastication, breath, local anaesthetics, etc., at the end of year, so the students will have time to prepare and discuss them.

#### *Visitors' comments*

- *They endorse the concerns of the staff about the lack of embryology in this course.*

### **1.3.2. GENERAL BIOCHEMISTRY (part 1)**

**Prof. Consuelo Calle García**

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#### 1. Introduction

This subject is also part of the common subject Morphology, structure and function of the human body. It consists of 1 credit (10 hours) and it is taught during the 2<sup>nd</sup> period of four months (12 hours a week) of the first year.

## 2. Primary Aims

To provide the students detailed knowledge on the hormonal action mechanism and metabolism regulation, as well as the cell type communication mechanisms, like the transmission of the nervous impulse and the muscular contraction.

## 3. Main objectives

5. To know the different types of hormones.
6. To know the hormonal action differential mechanisms.
7. To know the metabolism hormonal control by polipeptidic and catecolamine hormones.
8. To know the metabolism hormonal control by corticoids and sexual hormones.
9. To know the metabolism hormonal control by thyroid hormones.
10. To know the metabolic interrelations in the obesity

## 4. Hours in the Curriculum

This part has 10 hours of the common subject taught during the year.

## 5. Methods of learning/teaching

Interactive lessons and seminars where the students present a topic with subsequent discussion are carried out.

## 6. Assessment methods

Continuous evaluation of the student and discrimination of final mark by means of a written examination.

## 7. Strengths

The integrated knowledge of the metabolism helps the student to understand that the activity of the different tissues is interrelated.

## 8. Weaknesses

There will be needed more lesson hours for a better explanation of the proposed topics. There are not enough laboratories to do the practices. There are not offices in the School to receive the students during tutorial hours.

## 10. Plan for future changes

Integration of this subject in a single General Biochemistry subject, including the part taught in Molecular and Cellular Biology.

## *Visitors' comments*

- *It is unfortunate that the introductory component of biochemistry is biased too heavily towards one specific area, namely hormonal mechanisms. The visitors recommend that consideration be given to reorganisation of the combined biochemical courses along conventional lines.*

### 1.3.3. GENERAL PHYSIOLOGY

M<sup>a</sup> Dolores Vaticón

J.A. García-Baró

E. Colomina

#### 1. Introduction

General Physiology is taught during the first year. It is included in a common subject called "Morphology, structure and function of the human body". The teaching of this subject is done during ten weeks (usually during the third term): two lectures per week. Practicals are organised in the Physiology Department of the Medical School: five practicals of two hours each. The syllabus is structured in systems, but, given that the amount of hours devoted to the theoretical part of this subject in the curriculum is very small (20), it is studied very superficially.

#### 2. Primary Aims

To give the students a superficial knowledge of the function of the different systems of the human body that maintain the homeostasis, emphasising in the regulation processes.

#### 3. Main Objectives

At the end of the year students should understand and know the processes underlying the functioning of the following systems:

- Physiology of the circulating fluids. Haemostasis.
- Physiology of the immunologic response.
- Kidney function and its regulation.
- Respiratory function
- Cardiovascular function. Blood pressure regulation.

#### 4. Hours in the curriculum

Twenty theoretical hours and ten practical hours.

#### 5. Methods of learning/teaching

Lectures, practicals and tutorials.

#### 6. Assessment methods

Only one examination. One hundred sentences with one false / one true answer each are proposed. 75 % of correct answers are required to pass the evaluation.

#### 7. Strengths

This subject raises great interest in the students, not only because of its content but for the clues it gives to them, which are useful to understand other subjects.

#### 8. Weaknesses

The continuous divergence between the *desideratum* of the teachers and the real possibilities of improving our teaching. In the context of the current curriculum, General Physiology has to be taught in 20 hours, time clearly insufficient to develop it properly.

#### 9. Innovations and best practices

Taking the advantage of the students' interest, videotapes and interactive teaching programs are used to improve their knowledge.

#### 10. Plans for future changes

There are expectations for this subject to be equilibrated with other subjects in the curriculum in order to develop a suitable full program.

#### *Visitors' comments*

- *There is an imbalance in the small amount of time allocated to this important component of the course compared to other basic science subjects. For example there are concerns at students' inability to cope with the demands of later courses such as anaesthesiology and reanimation.*

### **1.3.4. GENERAL CYTOLOGY, GENERAL HISTOLOGY, ORAL HISTOLOGY**

**Prof. Angel López Carbonell.**

#### 1. Introduction

The subjects of Cytology, General Histology and Oral Histology are taught during the two first years of the course, being one of the three common subjects: "Molecular and Cellular Biology", "Morphology, structure and function of the human body" (both taught during the first year) and "Morphology, structure and function of the oral cavity" (taught in the second year). The topics of these common subjects are, respectively: "General Cytology", "General Histology" (one following the other, with two hours per week of theoretical lessons and one practical lesson, during the first term of the year, and another hour of theoretical lessons per week and another hour of practical lessons during the second term) and "Bucco-dental Histology" (one hour per week of theoretical lessons during the third term, without practical teaching).

#### 2. Primary Aims

To provide the students, at intervals:

- a) Minimum knowledge of the animal cell structure and ultra-structure, as an essential basis for the understanding of the Histology.
- b) Enough knowledge of the human body tissues, as a basis to deepen into the Bucco-dental Histology.
- c) Extended knowledge of the Bucco-dental Histology.

#### 3. Main objectives

The students have to reach an adequate knowledge of:

- a) The structure, ultra-structure, basic chemical compositions and functions of all cell organisms.
- b) The most relevant structural, ultra-structural and morpho-functional aspects of the epithelial tissue, the connective tissue cells and intercellular substance, blood, cartilaginous and osseous tissues and nervous tissue.
- c) The structure, ultra-structure and histophysiology of the oral mucosa, the tongue, the salivary glands and teeth and periodontium, as well as the histological aspects of the odontogenesis.

#### 4. Hours in the Curriculum

The total number of lessons for this subject is 55 (35 theoretical lessons and 20 practical lessons), divided as follows:

- a) "General Cytology": 10 theoretical hours and 10 practical hours.
- b) "General Histology": 15 theoretical hours and 10 practical hours.
- c) "Bucco-dental Histology": 10 theoretical hours. There is not practical teaching assigned to this subject.

#### 5. Method of learning/teaching

This subject is planned, as a whole, in conventional theoretical lessons and practical lessons. In these practical lessons histological preparations in which the students identify the different cells, tissues or organs previously studied during theoretical lessons are shown. Slides are projected made from selected ultra-structural images. The students, individually or in groups, can ask questions to the teacher 6 hours per week during the tutorial sessions.

#### 6. Assessment methods

The evaluation is being done by a final exam, different for each one of the subjects, that consist of three long answer questions. Also, a practical exam (identification of several histologic preparations) is completed for "General Histology", that counts for the final mark.

#### 7. Strengths

The teacher/student relationship is very easy because the students have the same teacher in all the subjects, both theoretical and practical lessons. Also, all the topics that are irrelevant for a dentist have been eliminated, focusing on these topics important for them.

#### 8. Weaknesses

There are mainly two:

- a) Mandatory in the current curriculum, for purposes of final evaluation, the whole Cellular Biology is subdivided in the three parts mentioned above, which are integrated in the common subjects stated in the "Introduction", together with other subjects such as Anatomy, Physiology or Biochemistry. The worst disadvantage is that a student may fail the whole common subject for failing just one of these subjects.
- b) "Bucco-dental Histology" in second year of the course, surprisingly, has not got practical lessons assigned.

#### 9. Innovations and best practices

For practical teaching, students are subdivided in four groups of 25-30 students each, permitting a more personalised teaching, which helps to develop the teacher/student relationship.

#### 10. Plan for future changes

The new curriculum, coming soon, considers independence of all subjects included in the common subjects. So that, Cellular Biology would be only one subject taught in one academic year, eliminating the skillful organisation of the present plan and avoiding the atomisation that these common subjects have been suffering.

*Visitors' comments*

- *Visitors are concerned at the lack of practical classes in oral histology. They commend the attempts to develop a more personalised approach to teaching through the use of small groups.*

**1.4. MOLECULAR AND CELLULAR BIOLOGY**

Common subject that includes General Cytology and General Biochemistry (part 2).

**1.4.1. GENERAL CYTOLOGY** (see 1.3.4.)**1.4.2. GENERAL BIOCHEMISTRY (part 2)**

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1. Introduction

General Biochemistry is part of a common subject taught in the first year: Molecular and cellular biology (that also includes Cellular Biology, taught by the Cellular Biology Department). It includes molecular biology but not topics as hormones and nervous transmission or oral-dental biochemistry. It aims the students to acquire the biochemical language and the knowledge necessary to deep properly in other subjects, as biochemistry is becoming key for other sciences.

2. Primary Aims

Students to be able to apply the biochemical basic knowledge to the organism as a whole, especially to the oral field, being able to understand the new coming knowledge.

3. Main objectives

Main objectives are the students to know:

- The general structure and function of proteins, deeping in the knowledge of plasmatic proteins, haemoglobin, collagen and immunoglobulins. Enzymes knowledge is emphasised.
- The basic concepts on molecular genetics.
- The energetic basis of the biochemical processes.
- The digestion, structure and metabolism of carbon hydrates.
- The digestion, structure and metabolism of lipids.
- The metabolism of nitrogenated compounds: metabolism of proteins and fate of aminoacids, as well as structure, function and metabolism of nucleotides.

4. Hours in the curriculum

50 theoretical hours (2 hours a week) and 10 practical hours all along the first year.

5. Methods of learning/teaching

This subject is approached through lectures and practical lessons on several basic principles (isolation of biological molecules by using different techniques, enzymatic kinesia, assessment of metabolites of clinical importance, etc). Overheads used in lectures are given to the students for their own use. Scientific videotapes are also projected. Students are more directly assisted during 6 totorial hours per week.

6. Assessment methods



A continuous examination is done along the year by performing two partial eliminative examinations. Exams are made of multiple choice and short answer questions. Each part makes 50 % of the final mark. The final examinations (in June or September) is similar. Revision of exams is always done. Full attendance to the practicals or a practical exam is required to have access to the theoretical examination.

7. Strengths

The continuous assistance to the students both in the theoretical and practical aspects of the subject. The teaching facilities (theatres, audio-visual system) are appropriate.

8. Weaknesses

Together with the practicals performed at the Biochemistry Department of the Medical School, it would be very convenient to have facilities in the Dental School to perform more oral-dental oriented practicals.

9. Innovations and best practices

- Teaching is self-evaluated by the teachers at the end of each course leastened the comments raised by the students.
- The use of scientific videotapes showing the tridimensional structure of enzymes and immunoglobulins has been seen as very positive by the students, although it is difficult for them to find enough time to watch them.

10. Plans for future changes

The new dental curriculum will include both General and oral-dental biochemistry in the first year. Cellular Biology (currently taught by the Cellular Biology Department) will be independent from General Biochemistry.

*Visitors' comments*

*see the visitors' earlier comments on general biochemistry (part 1).*

*The visitors were puzzled that the subject of biochemistry is apparently organised by two different teachers working independently of each other.*

## **1.5 INTRODUCTION TO DENTAL CLINIC**

**Prof. M<sup>a</sup> Jesús Díaz Torres**

### 1. Introduction

This is a subject of the 1<sup>st</sup> year of Dentistry.

The students are initiated in the general knowledge of the clinic, the instruments and the bucco-dental prophylactic, diagnostic and therapeutic clinical procedures, helping the early acquisition of attitudes essential to the development of the Dentistry.

The first part is dedicated to the study of the basic bucco-dental names and terms; in the second part focuses on the main activities done in a dental clinic, and the third is dedicated to the instruments and essential areas that form the clinic.

### 2. Primary Aims

- To transmit the student the meaning and limits of the Dentistry and the attraction for the knowledge of the different dental branches. To help them in their later studies and to integrate them into the knowledge of other subjects.

- To know the basic language that allows them to communicate in dental environment, and the place the dental clinic takes with the instruments used in it.
- To create from the beginning habits in the student and to obtain skills and attitudes that permit the development of basic activities in the clinic.

### 3. Main objectives

The students have to be able:

- To define basically the oral cavity from an anatomic, physiologic and psychological point of view, distinguishing its peculiarities from the other parts of the human body.
- To identify the different sets of teeth that form the temporal and permanent dentition, the main parts that form the dental organ as well as the dental names more usually used in Dentistry to identify the teething.
- To recognise the meaning and clinical applications of the clinical history and the odontogram and to use the specific and adequate terminology for the description of the anomalies graphically shown.
- To describe basically what is a dental clinic as well as the main and auxiliary parts of it.
- To describe, to recognise and to handle the basic elements of the dental unit and its accessories.
- To define the ideas and to explain the importance of the dental protection, hygiene, disinfection and sterilisation methods.
- To recognise, to describe and to explain the usefulness of the dental instruments that form the basic trays of the Centre.
- To identify the different rotary instruments in the dental clinic and its instruments setting a proper apprehension and handling while they use them during practical lessons with direct and indirect view.
- To describe and to adopt the basic settlement of the student as an auxiliary operator and patient in the simulated clinic, adopting poses that follows the general ergonomic principles during their stay at the clinic.
- To state the different bucco-dental care problems and the particularities of the professional actuation on the oral cavity.
- To state and to know the meaning of the different type of operations that can be done in the dental clinic on prophylaxis, basic resources of hygiene, related to caries, with pulpar tissue, periodontium, oral mucosa alterations, surgery or orthodontics.

### 4. Hours in the Curriculum

This is a compulsory subject taught in 1<sup>st</sup> year.

This subject has 5 credits assigned (50 hours), distributed in 10 theoretical lessons and 40 practical lessons.

### 5. Method of learning/teaching

- Lectures, seminars, iconographic sessions.
- Pre-clinical laboratory and simulated clinical practices.
- Clinical practices with simulated methods among the students and performance of roles to fill forms, odontograms, setting, instruments and functioning of the dental laboratory.

## 6. Assessment methods

- Continuous evaluation of the pre-clinical and clinical practical activities as much the abilities as the student attitude that ends with a practical exam.
- Practical exam for those students that failed the continuous evaluation.
- Written final exam including all theoretical knowledge using short questions of open answer and test type questions.

## 7. Strengths

- The high motivation that this subject, that gives them the first contact with practices and theory specifically related with the area they have chosen: the oral cavity, means to the student.
- The profit that suppose to the students to have from the beginning of their studies a basic start, entrance gate or preamble of the different sides the Dentistry have. This could be as a focus to integrate the knowledge of other basic subjects.

## 8. Weaknesses

- We see the difficulty that the student in 1<sup>st</sup> year have when changing to the University teaching together with the terminology and the instruments so specific for Dentistry.
- It is difficult to summarise, even in a basic way, the contents of the subject in the credits it actually have.

## 9. Innovations and best practices

- I think that the attendance of students to clinical activities would be motivational and helpful for the student's understanding.
- The possibility of create groups that need support during the practices will help to those with less psycho-motor abilities.

## 10. Plans for future changes

- To increase the number of theoretical and practical hours to allow a better explanation of the syllabus.
- The attendance of students to some clinical activities.

### *Visitors' comments*

- *The visitors recognise the value of this innovative approach but in order to obtain maximum advantage it is suggested that the course be explained to students within the context of the overall clinical course.*

## **1.6 INTRODUCTION TO DENTAL LABORATORY**

**Prof. José Manuel Martínez Ramos**

### 1. Introduction

The Introduction to Dental Laboratory syllabus tries to initiate the students in the knowledge of the working areas in the laboratory and its organisation, to familiarise him with the most used instruments and the physical basis of its management, and, at last, to know how to make the buccal prosthesis needed in the dental clinic.

## 2. Primary Aims

- To know the organisation and competencies of a dental laboratory.
- To know the Laboratory armamentarium.
- To know the physical basis of the different processes used to make the buccal prosthesis.
- To manage material for the making of models.

## 3. Main objectives

- To describe the installation, design and distribution of the laboratory working areas.
- To describe the light, the working table and the working positions.
- To understand the importance of the relationship clinic/laboratory.
- To know the rotary use instrumental, and the cutting rotary tools: drills, stones, etc.
- To know the usual armamentarium: strain machines, porcelain oven, muffles, pressing machines, bath, Cutter, acrylic injection device, vibrators, sand machines.
- To know the heating sources.
- To know the physical processes of fusion and solidification for the different materials, such as plastics, metal alloys and porcelains.
- To properly handle the most commonly used materials: plaster, alginates, acrylics, wax.
- To obtain study patterns. To obtain and design base plates and articulated rolls in edentulous models.
- To describe the characteristics and components of the semi-adjustable articulator.
- Articulate and wax set of teeth.

## 4. Hours in the curriculum

Introduction to Laboratory (1<sup>st</sup> year): 70 hours (10 theoretical and 60 practical-technological).

## 5. Method of learning/teaching

- Lectures.
- Individual and supervised technological practices.

## 6. Assessment methods

Practical-technological ambit:

Continuous evaluation (affective valuation, psychomotor valuation about the interest in the realisation, imitation ability, valuation of the work finished).

Cognitive valuation:

Need to pass the continuous evaluation to do the final evaluation.  
Final evaluation: Oral test / Written topics.

## 7. Strengths

The amplitude of the laboratories of technological practices.

## 8. Weaknesses

The expense for the students due to the fungible material needed for the practices.

9. Innovations and best practices

More plaster vibrators and cutters in the laboratory.

10. Plan for future changes

External visits to dental laboratories.

*Visitors' comments*

- *The visitors felt that this course might possibly be over-extended. They question the length of this propaedeutics course in the context of the need for additional hours for clinical activities elsewhere in the course.*

## **1.7 HISTORY OF THE DENTISTRY**

**Prof. F. Javier Sanz Serrulla**

1. Introduction

This subject is a compulsory subject of the first cycle taught during the first year of the course by the Department of Preventive Medicine, Public Health and History of the Science.

2. Primary Aims:

The main objective of this subject is to transmit the student the evolution of this science since the pre-history until now, focusing on its professional, scientific, technical, clinical and social aspects. This way, by the end of the course, students will have a broad knowledge on how the profession he/she has chosen has evolved.

3. Main Objectives

General:

To achieve the knowledge of the current situation of the profession, as a consequence of the evolution of all scientific and technologic advances, taught during the year.

Specific: To know:

- The medical-odontological vocabulary.
- The evolution of the oral diseases since the primitive man.
- The origins of the dental treatments.
- The evolution of the dental laws.
- The evolution of dentists in the society
- The development of the dental science.
- Dentistry in the XXIst century.

4. Hours in the curriculum

Currently: 30 theoretical hours. In the next curriculum: 35 theoretical hours and 10 practical hours.

5. Methods of learning/teaching

Teaching is given to an only group by an only teacher. There are three teaching blocks:

- Introduction: Document and Terminology
- History of the Universal Dentistry
- History of the Spanish Dentistry

Teaching follows a chronological organisation since the pre-history until now, in clearly differentiated steps, studying the most relevant facts, its relation with medicine, their authors and the position of Dentistry in the scientific world. A participative approach is posed, and discussions between teacher and students are encouraged.

#### 6. Assessment methods:

There is an exam on theoretical contents, trying to identify whether the students are able to establish the sequence of the most important moments of the dental science and its input to the public health.

#### 8 and 10: Weaknesses and plans for future changes

This subject should be taught during the second cycle, even at the end of this cycle.

The practical content of this subject will be taught to groups of 20 students after the next year, training them in the research on history and the performance of the scientific work.

It would be very convenient to improve the current Dental Museum of the Dental School, planned following modern techniques, therefore allowing the students to increase their instruction.

An associate professor should be responsible of this subject.

#### *Visitors' comments*

- *This is an interesting and informative course which might be better considered as an elective course.*

### 1.8 GENERAL RADIOLOGY, PHYSIC MEDICINE AND APPLIED PHYSICS

**Prof. Luciano González**

**Prof. Julio Larruga Rey**

**Prof. Isabel Roldán Rivera**

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#### 1. Introduction

General radiology, physic medicine and applied physics is a subject with two groups of objectives clearly differentiated, one related to notions and aspects of the physics about dental career, and other radiological. It is taught during the third term in first year, with 2 theoretical lessons and one hour of seminars or practices a week.

#### 2. Primary Aims

This subject must give information on the scientific methodology using the description of principles and physical laws that contribute to understand the functioning of the human body and its biological processes. Some physical agents and methods used in Dentistry are analysed and the necessity and methodology of protection against these physical agents, including the ionisation agents, is stressed. By means of these subject, the students learn to recognise the different radiological images in human anatomy, to understand the effects that the ionisation agents produce on the body, and to distinguish between the oncological processes of the buccal area and its radiological treatment.

### 3. Main objectives

- To apply the laws describing the behaviour of the waves in general to the acoustic waves, to describe the notion of acoustic impedance and to explain the basis of the obtention of the echographic image.
- To know the physical basis that justify the effects of the electrical and magnetic fields over the body, and its possible use for diagnostic and therapeutic applications.
- To express the main characteristics of electromagnetic waves.
- To formulate the general criteria on radiological protection.
- To know the biological effects produced by the ionising radiation.
- To know how to describe and recognise the main characteristics of the human radiological anatomy.
- To differ the images produced by the different radiological devices and its radiological and therapeutic use.
- To recognise and understand the oncological characteristics and the radiological treatment applied to head and neck tumours.

### 4. Hours in the Curriculum

The subject has 20 theoretical hours and 10 practical hours and seminars. Among these, 15 hours (10 theoretical and 5 practical) are dedicated to physic contents and the other 15 to radiological contents.

### 5. Method of learning/teaching

Lectures and seminars to complement some topics. There are not laboratories or economical funds available to get resources destined to practices.

### 6. Assessment methods

The exam is based on multiple choice questions. The questions, normally evaluate just one concept or require the solving of a numerical elemental exercise. They have four options, only one valid. The exercise is considered as passed if the number of correct answers overcome 62%. The mark obtained is composed arithmetically with the ones obtained in radiology and physics.

### 7. Strengths

In the part related to the physical aspects, the subject tries to follow the characteristic descriptors of similar subjects of the curricula of universities in the European Union, and the ones detailed in the National Official Bulletin, where the subjects related to the Dentistry curriculum are detailed. Looking at the rest of the curriculum, it seems obvious that this is the only common subject that contains an approximation of physic character to the description of certain methods, equipment, etc., to reach a general information about the scientific methodology, the physical agents of daily use and the need of protection against them.

### 8. Weaknesses

The subject has a short duration, this motivates that some descriptors in the National Official Bulletin, mentioned before, must appear as simple statements. In fact, in its previous version, the former curriculum of studies, this subject had five theoretical credits and two practical credits.

### 9. Innovations and best practices

Nothing expected to include for next year.

### 10. Plan for future changes

If resources are funded for a laboratory, practicals will be introduced. Nevertheless, plans can not be done unless we know the new curriculum because this subject, for its teaching load, must be modified, as seen in the guidelines for the curricula.

#### *Visitors' comments*

- *The visitors were impressed with the value of this course.*

## **2. Second Year**

### **2.1. PHARMACOLOGY**

#### *Visitors' comments*

- *This course appears to be overextended and too detailed for the needs of dental students.*

### **2.2 MORPHOLOGY, STRUCTURE AND FUNCTION OF THE ORAL CAVITY**

Common subject divided in Regional Anatomy, Oral Histology, Oral Biochemistry and Oral Physiology.

#### **2.2.1. REGIONAL HUMAN ANATOMY**

**Prof. Concha Martínez-Alvarez**

**Prof. José Francisco Rodríguez Vázquez**

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##### 1. Introduction

The common subject Human Regional Anatomy is taught during the two first terms of the second year, two hours of theoretical lessons and one hour of practical lessons a week. It begins with dental morphology (half of the subject) and ends with the anatomy of the head (except the skull and the neurological part studied the previous year) during the second half of the subject.

##### 2. Primary Aims

To provide the students with a detailed knowledge of the morphology and situation of the different facial structures (mainly the ones in the oral cavity) and the dental morphology, as a basis for the clinical practice.

##### 3. Main objectives

The students will have an adequate knowledge of:

- The constituting anatomic elements of the oral cavity, its topographic disposition and its contents.
- The dental morphology and the elements that form the periodontium.
- The head muscles, mainly those originated from the first and second branchial arch together with its function during chewing and swallowing movements.
- The morphology and topographic disposition of the salivary glands.
- The vascularisation of the head.



- The cranial nerves: trigeminum, facialis, glossopharyngeus, hypoglossal and parts of vagus related to the head.

#### 4.- Hours in the Curriculum

The total number of theoretical and practical lessons for the subject is 60.

#### 5. Methods of learning/teaching

This subject is planned in conventional theoretical lessons and practical lessons, where the students are induced to identify the structures previously studied using dissected pieces. The dental morphology practices consist on drawings of the five sides of the permanent teeth, scaled from an atlas or real teeth and the carving of the same teeth during practices (also scaled) using wax or soap. The students, individually or in groups may have tutorials (6 hours per week might be planned).

Sometimes, students have been asked to search for information and prepare presentations on certain topics during additional seminars.

#### 6. Assessment methods

This subject is evaluated through a theoretical examination, including multiple choice questions and short answer questions (less than four minutes), and a practical exam identifying structures on dissected pieces. The dental morphology practical exam is evaluated by carving a tooth with in wax and recognising three natural teeth. The theoretical exam represents 80% of the final mark. There are two partial eliminative exams during the year.

#### 7. Strengths

The carving of teeth in wax or soap, although a lot of time is needed from the teacher and the students, give a good knowledge of the dental morphology and also, stimulates their hand abilities.

#### 8. Weaknesses

As it has been previously said, forced by the national regulations, the regional anatomy subject is included in the Morphology, structure and function of the oral cavity. However, this sort of integration only applies for the students to obtain a single mark for the whole block. There is not any kind of coordination, neither for teaching nor for evaluation, other than the previously said. A student may fail the whole common subject by failing just one of these subjects. The new curriculum will consider a total separation, also for evaluation purposes.

#### 9. Innovations and best practices

The year is divided in two theoretical groups and four practical groups. There are two teachers in charge of these, so the teaching is directed to a small group of students (approximately 50 per theoretical group and 25 per practical group) helping the relationship teacher/student.

#### 10 Plan for future changes

The curriculum will change soon. It is foreseen that both the General Anatomy and the Regional Anatomy subjects will be taught in one year. This will eliminate the artificial division of the topics currently in use.

*Visitors' comments*

- *This is an appropriate course and should be more appreciated in the context of the proposed new curriculum.*

### **2.2.2. ORAL HISTOLOGY**

(See 1.3.4.)

*See previous comments concerning the practical class*

### **2.2.3. ORAL BIOCHEMISTRY**

Prof. Gregorio Angel Santos Montes

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#### 1. Introduction

It is taught during the 2<sup>nd</sup> year. It is a shared subject with the departments of Anatomy, Physiology and Cellular Biology, as it is included in the common subject Morphology, structure and function of the oral cavity. The Biochemistry department teaches 10 theoretical lessons given weekly during the first term.

#### 2. Primary Aims

To provide the students with a detailed knowledge of the tooth components and the periodontium, particularly the proteins and its function in the mineralisation process.

#### 3. Main objectives

- Organic and inorganic components of the tooth's different tissues.
- Function of the proteins in the regulation of the mineralisation process in the different tissues of the tooth.
- Periodontium components.
- Knowledge of the genes that coded for the tooth proteins. Implication in hereditary pathologies.
- Principles in tooth morphogenesis.

#### 4. Hours in the Curriculum

Total number of lessons 10.

#### 5. Method of learning/teaching

Through lectures treating to establish a dialog with the students planning, if possible, the lesson as an initial question that needs to be answered.

#### 6. Assessment methods

50 test questions and 2 questions about the topics taught.

#### 7. Strengths

#### 8. Weaknesses

This teaching is done in a single group with more than 100 students. The rhythm of the lessons is very slow, 1 hour a week. The timetable is not suitable for the students and teachers, from 14:00 to 15:00.

#### 9. and 10. Innovations and plan for future changes

In the new curriculum these 10 lessons will become part of the subject of Biochemistry, in my opinion this is an improvement because it is its most natural fitting.

*Visitors' comments*

- *This course would benefit by an amalgamation with the relevant parts of the existing elective biochemistry course but should still be compulsory.*

## **2.2.4. ORAL PHYSIOLOGY**

M<sup>a</sup> Dolores Vaticón

J.A. García-Baró

E. Colomina

### **1. Introduction**

This subject is included in a common subject called " Morphology, structure and function of the oral cavity" and implements the program started in the first year. It is developed in the second term of the second year: two theoretical hours per week. As there are not facilities in the Dental School to perform practicals of Oral Physiology, the time devoted in the curriculum for them is used to perform seminars.

### **2. Primary Aims**

The students to acquire the physiological basis needed for the Dental practice.

### **3. Main objectives**

The physiology of the nervous and digestive system are developed, stressing on:

- The physiological basis of the sensitive processes.
- The physiology of the afferent somatic system.
- The buccal sensitivity
- The physiology of the muscular system
- Chewing, salivation and swallowing.
- Motility, secretion and absorption in the digestive tract.

### **4. Hours in the curriculum**

Twenty theoretical hours and ten practical hours.

### **5. Methods of learning/teaching**

Lectures, tutorials and seminars.

### **6. Assessment methods**

Only one examination. One hundred sentences with one false / one true answer each are proposed. 75 % of correct answers are required to pass the evaluation.

### **7. Strengths**

The students' good attitude drive them to attend voluntarily to the practicals programmed for medical or physiotherapy students.

### **8. Weaknesses**

Because the General Physiology subject taught in the first year is not developed as correctly as it should be (given the shortness in the time devoted to it), the Oral Physiology subject is not as well elaborated as desired. To give an example, the endocrine regulation is never studied.

**9. Innovations and best practices**

Taking the advantage of the students' interest, videotapes and interactive teaching programs are used to improve their knowledge.

**10. Plans for future changes**

There are expectations for a change in the new planned curriculum.

*Visitors' comments*

- *As previously the visitors feel there is a need to increase the number of hours. Integration between regional human anatomy, oral biochemistry, oral histology and oral physiology is advised in curriculum planning, although actual teaching and assessment may remain separate.*

## **2.3 DENTAL MATERIALS, EQUIPMENT, INSTRUMENTATION AND ERGONOMY**

Prof. José María Vega del Barrio

**1. Introduction**

This program has two different parts: theoretical contents and practical contents. The theoretical contents are divided in six parts: the first part is dedicated to main aspects and basic principles about general properties of the dental materials. The second, third and fourth parts are, respectively, dedicated to polymeric materials, ceramic materials and metallic materials, used in Dentistry. The fifth part is about equipment and instruments, complementing sufficiently all things related to the management of the materials mentioned before. The sixth part is about ergonomics and organisation.

The practical lessons are designed to help the student progressively to develop the psycho-motor abilities needed for the management of material, equipment and instruments, as in the laboratory as in pre-clinical situations, with postural and correct handling and efficacy attitudes.

**2. Primary Aims**

The global objective is to provide the students with the knowledge giving them the skills, abilities and poses, pre-clinical perspective that helps them to perform the clinical activity with efficacy and security.

**3. Main Objectives****A) THEORETICAL OBJECTIVES:**

- To describe the general characteristics of dental materials (mechanical, thermal, electrical, optical, etc.).
- To recognise the biophysical and physicochemical basis of these properties and its influence on the behaviour of the materials in the bucco-dental biological setting.
- To use in a proper way the terminology of this field.

- To describe the composition, structure and general properties of each dental materials group or family.
- To define the main clinical and/or laboratory applications of each dental material group or family.
- To describe the main characteristics of equipment and usual instruments in Dentistry, as well as the basis of its functioning.
- To know the ergonomic principles applied to Dentistry about working positions, organisation, administration, risk prevention and quality control.

#### B) PRACTICAL OBJECTIVES:

- To develop skills for the management and use of simple or complex materials, equipment and instruments, used in dentistry with ergonomic criteria.
- To adopt, from the beginning, habits and poses for the best psycho-motor efficiency, reducing the physical effort and the risk of accidents over the patients and professional diseases on the members of the bucco-dental health staff.
- To identify the tasks that the clinician “must know how to do by him/herself” from those that he/she “must know that others do”, because, frequently, the final responsibility of all the staff around the patient will fall on the dentist.
- To use all the resources, human and materials, with quality control criteria.

#### 4. Hours in the curriculum

Common subject taught during the whole 2<sup>nd</sup> year. Total teaching load 125 hours: 50 theoretical hours and 75 for practical activities.

#### 5. Method of learning/teaching

- Theoretical lessons and seminars.
- Laboratory activities with pre-clinical contents.
- Pre-clinical simulations on teeth models and phantoms.
- Audio-visual demonstrations.
- Discussion about clinical simulations.

#### 6. Assessment methods

- A) Theoretical contents: Two partial evaluations and one final evaluation. In all cases there are written exams with multiple choice questions and open questions with short answer. In the final evaluation the students, optionally, can be examined *viva voce*.
- B) Practical contents: Continuous evaluation over the year, by the teacher in charge of each group. Revision, at the end of the year, of all topics studied by the students.

#### 7. Strengths

- The students are highly motivated because this is a subject with dental contents, specific of the course they have chosen.
- Practical reduced groups and enough laboratories, facilities and pre-clinical equipment.

### 8. Weaknesses

- The ergonomics, organisation, administration, etc., might be performed in depth in subsequent years. The students in 2<sup>nd</sup> year do not have clinical criteria yet to understand its real importance.
- With the quick evolution of most of the material and methods using complex instruments, there is needed a subject of actualisation during the last years.

### 9. Innovations and best practices

#### 10. Plan for future changes

The design of a subject for the last years about “New technologies in Dentistry”.

#### *Visitors’ comments*

- *To emphasise the application of dental materials science it is advisable to relate the timing of this course to the preclinical courses. Extending this course into the clinical years may improve students’ understanding.*

## **2.4. GENERAL SURGERY**

**Prof. Jaime Arias**

**Prof. Jose Angel de Diego Carmona**

### 1. Introduction

The subject “General Surgery” teaches dental students about Basic general surgery.

### 2. Primary Aims

To study the pathophysiological basis of the diseases that require surgical treatment. The main objective of this subject, that is not specifically dental, is to make the students understand as a whole how are organs and system integrated in the human body. This integration is better shown in certain situations that are to be explained during the theoretical lessons and are complemented with hospital evidence, that is the practical teaching.

### 3. Main objectives

The study of the pathophysiological basis of the Surgery, referring specially to traumatisms, infections and tumours.

Likewise, the basis of clinic, diagnosis and treatment is studied. The practical lessons are complemented with stays in the Surgery Department at the University Hospital over its different assistential areas: emergency, surgical recovery unit, hospitalisation unit and out-patient surgery unit.

A second objective, but not less important, is that the students acquire behaviour habits in front of the patients, inside the hospital. This is intended during the practical teaching while being on call and their stay in the operating theatres, hospitalisation and recovery units. This habits, probably, will be continued and enlarged when the student reach the main dental teachings.

### 4. Hours in the curriculum

General Surgery is a common subject with 7 credits, 5 theoretical credits and 2 practical credits.

### 5. Methods of learning/teaching

The practical teaching is done at Hospital Clínico de San Carlos. The students, divided in small groups, are integrated in the activities of a general surgery service and digestive tract service. Particularly, they are in contact with real clinical situations that have been explained during the theoretical program.

#### *Visitors' comments*

- *Demonstrations and consultations on patients should be pursued in a hospital setting both for general surgery and E.N.T.*

## **2.5 GENERAL MEDICINE**

**Prof. Carlos Perezagua**

**Prof. L. Collado**

**Prof. M<sup>a</sup> J. Ciudad**

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### 1. Introduction

The General and Medical Pathology is included in our curriculum together with Paediatrics and Dermatology, in the subject named General Medicine, during the second year of the course. During the teaching assigned to this subject it is intended to teach the students of Dentistry that their professional practice can not be focused only on the study and management of the estomatognathic system, as this is integrated in the human body and participates active and reciprocally in the different conditions affecting the mentioned organism.

### 2. Primary Aims

1. To initiate the students in the knowledge and understanding of the diseases that affect the human beings. To study its causes (Aetiology), the development of the disease (Pathogenesis), its repercussion over the regular function of the body (Pathophysiology), its signs and symptoms (Semiology), its identification (Diagnosis) and the therapeutic existing arsenal (Treatment).
2. To train the students in the recognition of the signs and symptoms present on their patients, by a correct clinical record, to have the adequate prophylactic measures for managing the teeth of these patients, in the best conditions available.

### 3. Main objectives

The specific objectives of our subject are to develop the students abilities, using a correct clinical record, to identify the condition of the patients that come to the dental clinic and state the better health conditions available for their dental treatment

The students have to be able:

1. To write a correct clinical record in the headings: Clinical interview by systems - .Familiar and Personal background, -.General clinical exam by: Inspection, Palpation, Percussion and Auscultation.
2. To use properly the main instruments of basic exploration: Stethoscope, Sphygmomanometer, etc...
3. To know and understand the main analytical tests: Systemic Blood, Biochemistry, etc...

4. To know and identify physiological electrocardiograms and its more relevant alterations.
5. To monitor the blood pressure and pulse.
6. To know the main cardiovascular accidents and its impact on teeth: Heart failure, endocarditis, high blood pressure.
7. To know the main diseases of the respiratory System: Breath failure, Pneumonia, etc... and its signs and symptoms.
8. To know and identify the main blood disorders, as Anaemia and the different types of Hemorrhagical Diathesis.
9. To know the main metabolic and endocrine disorders and its impact on the stomatognathic system.
10. To know the digestive disorders with bucco-dental influence. Hepatitis, etc...
11. To identify the main infectious syndromes and its prophylactic measures.

#### 4. Hours in the curriculum

The development of this subject is done in 80 hours per year, during a semester, divided into theoretical and practical lessons, 60 of them corresponding to General Medicine and the other 20 divided in 10 hours for Paediatrics and 10 hours for Dermatology.

#### 5. Method of learning/teaching

Basically, the teaching method of our subject is through theoretical lessons of 60 minutes length, where, using slides, videos, etc... the teacher explains the subject giving the last 15 minutes for questions and discussions with the students.

During practical lessons, case reports are posed in which the students have to give the diagnosis asking some questions and predict the prophylactic measures to be made to the patient before beginning the dental treatment. In the same way, during practical lessons the students are trained on the management of basic diagnostic methods using clinical material: Stethoscope, sphygmomanometer, etc...

To end, and only for volunteers, the students may attend, supported by their tutor, the different Medical Services at Hospital Universitario de San Carlos to gain some experience in treating directly ill human beings, during their pre-grade studies.

#### 7. Strengths

The evaluation of the professional ability of the students in our subject is done with a final exam test type with multiple choice questions, as well as a case report related to the future professional exercise of the student.

Those students that have not done the practical lessons properly are evaluated with a practical exam where their skills on the management of the instruments, diagnosis, analytical samples interpretation etc... are evaluated.

#### 8. Weaknesses

One of the greatest problems our students have is the absence of clear limits between the pathophysiology studies and the clinic of the different conditions taught. Because of the present system, students do not have previous knowledge of General pathology, fact that makes that teachers have to explain at the same time the General and Medical Pathologies, with a slowness of the explanation of the topics of the subject and a great difficulty for the student in the understanding. We consider that the number of credits assigned to this subject must be enlarged to facilitate its explanation and learning.

Similarly, the limited funds given to the subject is delaying the settlement of teaching methods of simulation with computers.



### 9. and 10. Innovations and plans for future changes

The teachers are intended to start, within a time not longer than one or two years, experimental teaching methods as the Phillips 66, teaching by “Simulation and Role Play”, the auto-instruction or programmed teaching. To carry out these ideas, there is a group of teachers formed that will be in charge of a group of voluntary students who want to participate in these methods. To compare its efficacy over the classical teaching methods, these students would be evaluated in the same manner as the other students. Therefore, there is nearly performed the idea of an edition of a Semiology basic manual to identify morbid conditions in the Dental Clinic.

#### *Visitors' comments*

- *For the courses in general medicine including paediatrics and dermatology it is advisable to establish a close collaboration with a hospital to allow for patient contact.*

## **2.6 ANAESTHESIOLOGY AND REANIMATION**

Prof. Carmen Gasco

Prof. Martín Avellanal

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### 1. Introduction

This subject is included in the 2<sup>nd</sup> year of the 1<sup>st</sup> cycle in the Dental curriculum, being one of the subject included in a group of subjects called General Surgery and Medicine, that comprises General Surgery, General Medicine and Anaesthesiology and Reanimation. At UCM the subject Anaesthesiology and Reanimation and Pain Therapy is located in the Pharmacology Department at the Facultad de Medicina. There are two teachers, anaesthesiologists, assigned to the Facultad de Odontología.

This subject must assure enough knowledge of the anaesthesiology principles in the future dentists as well as the basis for the management of emergency situations in the dental clinic.

### 2. Primary Aims

These are based on the acquisition of scientific and theoretical knowledge to perform the following:

- To use and apply methods and resources to make the patients insensitive to pain and protect them from the physical or somatic aggression before, while and after surgery.
- To know how to maintain the vital functions in optimal conditions during dental explorations and surgery.
- To reanimate these patients in critical situation derived from dental management.

### 3. Main objectives

These are directed to:

- Learning the patient pre-surgical valuation using a clinical case report with anaesthetic focusing, to evaluate the surgical anaesthetic risk with the ASA scale, to learn how to prescribe the pre-medication and obtain written informed consent from the patient who is going to be anaesthetised, by local, sedation or general anaesthetics.

- To know the drugs used in local anaesthetics as well as its prescriptions, complications, and to have basic knowledge on other types of local anaesthetics as the epidural, spinal or intravenous anaesthetics.
- To know the pharmacological and clinical basis of sedation, as well as the different methods used, the complications that could appear, and to manage the proper monitorisation.
- Knowledge of general anaesthetic principles, prescription, complications and its treatment. To know how to identify, by basic monitorisation, pulse, blood pressure and pulsemetry, pathologic situations that happen as a consequence of the use of general anaesthetics.
- Acquisition of knowledge on anaesthetics in special patients like children, disabled patients, cardiopathy patients, hypertension patients, as well as the anaesthetics in oral surgery and ambulatory anaesthetics.
- To know pharmacological, clinical and therapeutical principles of severe pain as well as other physical and psychological measures.
- Acquisition of knowledge on methods and therapies about emergency reanimation, and to know how to use them in the dental clinic.

#### 4. Hours in the curriculum

The development of the subject is done in 55 hours: 30 theoretical lessons and 25 practical lessons.

The teaching is done during one semester at the Facultad de Odontología in an assigned classroom and in the two laboratories of the subject. During the first term, eight practical lessons a week and in the second term, three weekly theoretical lessons and four weekly practical lessons.

#### 5. Method od learning/teaching

The teaching method of the subject is done with theoretical lessons of 50 minutes length, where, using audiovisuals (slides, videos) and the blackboard the teacher explains the subject giving the last 10 minutes for questions and problem solving. The recommended bibliography includes text books, anatomy and local anaesthetics atlas, and national and international journals about the subject. Also, there are taught by an expert one or two actual topics related to the dental anaesthetics.

Since the past three years, we organise a group of 5 students that have to pass a theoretical exam of 30 general questions (on computers, painting, cinema, theatre, abilities) to help the practical teaching of the subject. Practical subjects are taught to this group at the beginning of the semester, so they can teach and help together with the teacher. Also, problem solving is used and also they do the practices as “observers” in the operating theatre. It is impossible to do the same with the other students because they are about 120 students.

Practical lessons are taught in the simulated teaching laboratories, computer models, doing basic RCP practices, monitorisation, pulse, blood pressure, pulsemetry, cardiac and respiratory rates, electrocardiogram, (setting of electrodes and reading of an ECG), peripheral and central venous puncture, defibrillation, sedation and local anaesthetic videos, report cases of the patients that come to our clinics.

## 6. Assessment methods

There are two exams: An eliminative theoretical-practical exam at the end of the first term. The theoretical exam with 40 multiple choice questions, only one answer valid, and the practical exam with models. The students that pass get a certificate proving 14 teaching hours of basic RCP.

The final exam consists on 100 multiple choice questions with only one answer valid. It is complemented with 10 short answer questions. This exam is held at the end of the semester.

## 7. Strengths

The teaching is given by general anaesthesiologists always leaning on the clinical and technical-practical side.

The fact of organising a group of 5 or 6 students –AI- (resident students) shows that the more personalised teaching the better results obtained.

The development of the RCP year given by these same teachers is an incentive for the students.

## 8. Weaknesses

The students have not enough acquired the basis on anatomy, physiology, biochemistry and cellular biology, and they have not acquired also knowledge in general and surgical pathology, pharmacology and microbiology. This fact impedes the proper development of the teaching of our subject given in 2<sup>nd</sup> year, 1<sup>st</sup> cycle, together with these last ones. The students start understanding at the end of the year.

We believe that with the changes that will be done in the curricula, we will not gain much, because this subject must be taught in the second cycle, during the last years, 4<sup>th</sup> or 5<sup>th</sup>, when the student have more clinical knowledge.

## 10. Plans for future changes

To perform more AI groups and to increase the teaching with case reports and/or problem solving.

To consolidate the teaching of the basic RCP and to have re-cycle years for students in 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> years.

To perform the clinical-practical teaching of the inhaled and intravenous methods because we have material and architectural resources.

To prepare the students for the, in no longer amount of time, treatment with inhaled sedation in their clinic with N<sub>2</sub>O.

To set a collaboration with the medical-surgical department and join criteria related to the subject: Emergencies in Dentistry.

## *Visitors' comments*

- *The visitors would like to complement the organisation of this course and were impressed with the outstanding facilities. Visitors suggest that training is refreshed in later years of the course.*

## 2.7 GENERAL PATHOLOGY

**Prof. F. Llanes Ménéndez**

**Prof. J. Sáenz Ortega**

**Prof. A. Martínez Martínez**

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### 1. Introduction

The General Pathology is the science which studies the dynamic variations produced in the tissue structures of living beings as a consequence of a disease, whose causes, evolution and optimal therapy tries to explain.

### 2. Primary Aims

The student must know the macroscopic, microscopic and ultra-structural aspects of the lesions, understanding the relations between the signs and symptoms of the diseases and the pathological changes appeared on the tissues (general pathologic anatomy) and the organs (special pathologic anatomy).

### 3. Main objectives

Students have to know the lesions shown in: A) Congenital malformations, B) metabolic alterations, C) Hydroelectrolytic and haemodynamic disorders, D) Inflammations and E) growth disorders and neoplasm. They will learn the general methods of obtention, procedure and interpretation of cytology and biopsies. They must know how to find the lesions in the histologic samples and read the pathology reports.

### 4. Hours in the Curriculum

The general pathologic anatomy is a common subject with 3.5 total credits, 2 theoretical credits and 1.5 practical credits.

### 5. Method of learning/learning

There are 20 theoretical lessons taught, 10 hours of tutored microscopic observation and 5 seminars on technical aspects, methodological advances, history of the subject and future expectations, and explanation of specific pathology terms.

### 6. Assessment methods

Attendance is required to lectures, practices and seminars. A written exam with long answer questions, short answer questions and multiple choice questions is passed to the students. The evaluation is done over 10 points, being 5 points needed to pass. The relative evaluations is 1 point for continuous evaluation, 3 for the multiple choice test and 6 points for the written exam.

### 7. Strengths

The General Pathology department of the Hospital Clínico Universitario de “San Carlos” supplies surgical samples, collection of cytological and histological samples and facilities for microscopic observations.

### 8. Weaknesses

The teachers of the subject do not have a place at the Facultad de Odontología to do their functions, including the tutorial hours.

### 9. Innovations and Best Practices

Close relation with the pathologic anatomy and maxillo-facial surgery of the Hospital Universitario “San Carlos” de la UCM that introduce the students into the daily clinical-surgical practice and the diagnose of biopsies.

### 10. Plan of future changes

Access to the virtual congresses in Pathologic Anatomy and to the iconographic atlas of the subject in CD-ROM.

#### *Visitors' comments*

- *Visitors recommend that the general pathology course precede the subjects of human diseases. Development of oral pathology as a discipline in this dental school is essential.*

## **2.8 Psychology**

## **2.9 Paediatrics**

### **Prof. Pedro Herrera Andújar**

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#### 1. Introduction.

The paediatric diseases, its prevention and its revision in the context where the child is grown up are studied in this subject. It is included in a common subject together with Internal Medicine and dermatology during the second year.

#### 2. Primary Aims

To have a minimal knowledge of paediatric diseases, even if they are not applicable to practice, to be on mind of the future dentist when treating a child.

#### 3. Main Objectives

The students must have knowledge about:

- Preventive and social paediatrics.
- Normal new born baby.
- Infant and child feeding.
- Main knowledge on congenital malformations.
- Main diseases cursed with diarrhoea and vomiting.
- General review of cardiac, renal, infectious, neurological diseases.
- Social paediatric pathology: Accidents. Intoxication, children maltreats, children with oncological diseases.

#### 4. Hours in the Curriculum

At the beginning, this subject consisted on 20 theoretical lessons per year, while these general topics where quick and briefly explained. Nowadays, it is not possible only having 15 lessons per year in the current curriculum.

#### 5. Method of learning/Teaching

It consists on one weekly lesson during 15 consecutive weeks. The lesson is mainly theoretical, using complementary slides.

The student is provided with a summary of what was explained in the lesson.

During one of the first years there were theoretical lessons, but these were not successful because they are Dental students, not Medical students.

#### 6. Assessment methods

At the end of the year, with a test type exam, with some long answer questions.

As it is included in a common subject with Internal Medicine and dermatology, teachers meet to give a common mark.

#### 7. Strengths

Usually all the subjects, not only this one, are taught by highly qualified teachers, having on mind that we teach this same subject at the Facultad de Medicina.

#### 8. Weaknesses

Mainly, three:

There will be needed at least 25-30 lesson hours to give the student enough knowledge of this subject, and not 1 lesson per week, but in 2 consecutive days.

There are more than enough elective and open choice subjects. There must be no more than 6-8 subjects per year.

The subject has to be independent from Internal Medicine and Dermatology.

#### 9. Innovations and Best Practices

The theoretical contents have to be nice and practical to be learned by the students.

The practical lessons must be done at the Facultad de Odontología. Every child have to be examined by a paediatrician and, as in theory, he is a healthy child, at the same time by the student.

There could be reports, thesis, etc., coming out of these.

#### 10. Plan for future changes

As in 8.

As in 9, 2<sup>nd</sup> and 3<sup>rd</sup> sentences.

#### *Visitors' comments*

- See above Section 2.5

## **2.10 EAR, NOSE AND THROAT (ENT)**

**Prof. Fernando Rodríguez Gómez**

### 1. Introduction.

The teaching of ENT in the Facultad de Odontología is faced to teach the students the basic concepts of this subject that, due to its proximity and direct relation is going to act on their daily practice. The pathology of both fields is going to produce symptoms that, most of the times, neither the patient nor the professional can define the field of its action. This subject is included in the General Surgery Subject.

### 2. Primary Aims

The objectives of this year are faced to teach the students the basic concepts of the subject with special reference to the pathology that direct or indirectly affects or is related to the dental area.

### 3. Main Objectives

The students get in touch with the problems this pathology has in the daily practice in terms of:

Otology: Introduction of the ear problems, with signs and symptoms, that results on manifestation on this side and/or reflected in the oral cavity.

Rhinology: This area is closely related to the oral cavity, its pathology and development, as for the nostrils and the para-nasal sinus.

Pharynx-Laryngology: This area, most of the times with common pathology, is confused and treated by both dentists and ENT professionals.

### 4. Hours in the Curriculum

There are two (2) theoretical credits taught during the last term of the second year of the course, divided in one weekly lesson of 120 minutes.

### 5. Method of learning/teaching

The lessons are theoretical-practical, stressing on the basic concepts of each pathology with audio-visual support, slides and schemes that allow the students to have enough knowledge to perform a differential diagnosis. The structure of the course does not permit, by now, to have practical lessons.

### 6. Assessment methods.

The evaluation is done by an exam including multiple choice questions with 5 answers, only one valid. The number of questions is about fifty, amount sufficient for the proper evaluation of all topics taught.

### 7. Strengths

This subject interrelates the problems that appear in the pathology from the dental level with the ENT level, looking for the usual relations that these different pathologies produce. The students are taught in the attitude they must show in these problems, when they can treat them, and when they have to deviate them.

### 8. Weaknesses.

The main deficit of this subject at the moment is the lack of practices, as well as not to have a specific teacher at the Facultad de Odontología. Also that this subject is included in the common subject General Surgery, what leads to a difficult situation because of the different concepts that both subjects study: one is a general subject and the other is a medical-surgical specialty.

### 9 and 10. Innovations and plan for future changes.

This subject must be independent from others and be taught alone, due to the great relation its topics have with pathology at the dental level, its specific aspect, and, above all, because the symptoms of both fields are integrated. This subject must have its own specialty teachers that design adequate practical lessons, with material and facilities, to treat the patients examined by the Dental Faculty services.

### *Visitors' comments*

- *See above Section 2.4*

## **2.11 DERMATOLOGY AND VENEREOLOGY**

**Dr. Evaristo Sánchez Yus**

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1. Introduction

Dermatology and Venereology lectures are given during the second year, included in the General Medicine.

2. Primary Aims

- Basic notions on skin structure and function.
- Basic notions on the main dermatosis.
- Basic notions on the sexual transmission diseases.
- Cutaneous-mucous syndromes.
- Facial cutaneous diseases.

3. Main objectives

The students must:

- Know the architecture and usual functioning of human skin.
- Know the existence and basic mechanisms of the main dermatosis: infections, urticaria, eczema, erythemato-squamous dermatosis, and bulla dermatosis.
- Know the epidemiology and bacteriology of the sexual transmission diseases, as well as the main diagnosis and prevention methods.
- Know in detail the cutaneous signs of the cutaneous-mucous syndromes, congenital as well as infectious, reactives, auto-immune and of unknown pathogenic mechanism.
- Know the meaning of the cutaneous alterations of the face, mainly infections, pustular infections, congenital and acquired macula, and neoplasms and pre-cancerous processes.

4. Hours in the Curriculum

Ten hours.

5. Method of learning/teaching

There is a text book including Dermatology for dentists (a chapter of the Dentistry Manual directed by Prof. Bascones).

In these ten lesson hours, there are discussed selected topics of this book are discussed using lots of colour slides, so this is similar to the practical teachings.

6. Assessment methods.

Written exam with ten questions that have to be answered within half an hour, DIN A4 size (only one side), each one.

7. Strengths.

Having a specific text book the students know what is expected. The lessons are not repetition of the book but a commentary of special cases in multiple colour slides.

8. Weaknesses.

Ten hours are not clearly enough for the proposed objectives. They must be increased up to fifteen.



## 9. Innovations and Best Practices

In smaller groups, up to 20 students, the essentially practical classes would be more discussed.

*Visitors' comments*

- See above Section 2.5

## **Elective subjects in First Cycle**

*Visitors' general comments on the electives:*

*The subjects are in general very good. However, extended general biochemistry is suggested to join the core curriculum.*

## **2.12 Genetics**

**Prof. Angel López Carbonell.**

### 1. Introduction

The elective subject of genetics is offered during the third term (ten school weeks) in the second year, divided in two weekly theoretical lessons and ten practical lessons among the period. The cytogenetic aspects of the subject are mainly studied

### 2. Primary Aims

To provide the students the basic knowledge of the essential human cytogenetics in order to understand the different mechanisms of hereditary transmission of the normal and patologic situations.

### 3. Main objectives:

The students must achieve an adequate knowledge of:

- a) The cellular cycle, mitosis and meiosis, this one as a cornerstone in cytogenetic.
- b) Basic aspects of human masculine and feminine gametogenesis related to meiosis.
- c) Structure and study resources of the human chromosomes during metaphase.
- d) Genetic aspects of sexual determination and differentiation.
- e) Mendelian genetics, general and human applied.
- f) Complex mendelism and variations in Mendel's laws.
- g) Chromosomal anomalies, both in number and structure.
- h) Basic cytogenetic aspects of neoplasms.

### 4. Hours in the Curriculum

The total number of lessons for this subject is 30 (20 theoretical y 10 practical).

### 5. Method of learning/Teaching

This subject is planned in conventional theoretical lessons and practical lessons. In these practical lessons there are shown complementary aspects of the theoretical program, stressing on the laboratory methods used in cytogenetics. The students, individually or in groups, can ask questions to the teacher 6 hours per week during the tutorial hours.

### 6. Assessment methods

The evaluation is done by a final exam, consisting of many short answer questions about the whole program, including practical aspects. Some times there are, additionally, some long topics to explain.

### 7. Strengths

Despite of being an optional subjects in First Cycle, it is not allowed to students in first year to matriculate in this subject. This is to assure that they have got a previous minimum knowledge of gene molecular biology.

### 8. Weaknesses

The overload of subjects the students have in the present curriculum, together with the optional nature of the subject, makes that a significant higher percentage of students than for other common subjects do not come to the final exam. Otherwise, due to the availability of material, room and schedule, matriculation is only allowed to 30 students.

### 9. Innovations and Best Practices

The relationship teacher/student is granted, not only because of the small group of students, but due to the fact that students have studied two subjects with the same teacher during their first year, and are studying, at the same time, another in second year.

### 10. Plan for future changes

The new curriculum, coming soon, considers an increase in the teaching hours for this subject, so the current topics will be treated in depth, and planned as seminars, or explained by the students.

## **2.13 Topographic Anatomy of the head and neck**

Prof. Concha Martínez Alvarez

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### 1. Introduction

This is an elective subject of personal dissection of the head and neck that is carried out by the students themselves during the first term of second year (3 hours, one day a week). The maximum number of students allowed is 10 and they all need to have passed the common subject General Human Anatomy to do it.

### 2. Primary Aims

To provide the students with detailed knowledge on the anatomical structures surrounding the branches of the mandibular nerve.

### 3. Main objectives

The students will have adequate knowledge of:

- The structures surrounding the mandibular nerve and its branches.
- The topographical disposition of the structures forming the oral cavity.
- How to accede to these structures by dissection.

### 4. Hours in the Curriculum

The total number of hours assigned to this subject is 30, 5 theoretical and 25 practical.

### 5. Method of learning/teaching

In this subject, the students carry out the dissection of the face to reach the mandibular nerve and its branches. Some times, an intra-buccal dissection of the palatal branches of the maxillary nerve is also performed.

The 5 theoretical hours are used in seminars that are given by the students themselves about the topography of the area to dissect subsequently.

### 6. Assessment methods

This subject is evaluated by continuous evaluation. The attendance, active participation in the dissection, hand abilities and theoretical part presentation is marked.

### 7. Strengths

Personal dissection of head and neck provides the student with a deep knowledge of the face area that will be their working field and increases the hand skills using surgical instruments.

### 8. Weaknesses

The impossibility of allowing more than 10 students.

## **2.14 Extended Dental biochemistry**

Prof. Angel Santos Montes

### 1. Introduction

This subject is optional in the first cycle and it is taught during the second and third terms. It has 4,5 credits:3 theoretical and 1.5 practical

### 2. Primary Aims

To provide the student with adequate knowledge from the biochemical point of view of the different tissues of the tooth and the elements involved in its support, the mineralisation process of an organic matrix and the oral environment. All these in order to facilitate the biochemical understanding of dental pathology and therapeutical action

### 3. Main objectives

Detailed understanding of:

1. Tooth tissue components.
2. Human metabolism of mineral elements that formed the tooth.
3. Mineralisation process of an extra-cellular matrix.
4. Genes coding the implied proteins and its participation in hereditary dental diseases.
5. Composition of saliva.
6. Oral environment.
7. Biochemical aspects of caries
8. Biochemical aspects of periodontal diseases.

### 4. Hours in the Curriculum

30 theoretical hours and 15 practical.

### 5. Method of learning/teaching

Lectures with maximum participation of students with permanent dialogue due to the small number of students.

## 6. Assessment methods

With a report about a topic, chosen by the student, and a test type exam.

## 7. Strengths

The small number of student helps for a high interaction student-teacher.

## 8. Weaknesses

Being an elective subject, and opposed of what is expected, the selection of this is due to practical criteria, like the number of credits obtained with it, teaching period, etc. The students are worried about the timetable and they are not prompted at participation.

## **2.15 Applied photography**

**Prof. Francisco Holgado Saez-Gómez**

### 1. Introduction

This is an elective subject directed to familiarise the student with the issuing and image conservation methods.

### 2. Primary Aims

- To teach the theoretical knowledge and the photography methods.
- To use the needed material for clinical practice and photographic laboratory.

### 3. Main objectives

- To promote in the students the development of their artistic sensibility.
- To teach the management of the required photographic technical methods for clinical practice in the dental clinic.
- To capacitate the student in the processing and management of the image.
- To specialise the student in the macrophotography methods.
- To motivate the student to use the photography as a complementary method in dental treatments..

### 4. Hours in the Curriculum

4,5 credits: 1 theoretical and 3,5 practical.

Theoretical: 1 hour per week in a period of four months.

Practices: 4 hours per week in a period of four months.

### 5. Method of learning/teaching

- Lectures.
- Individual supervised technological practices.

### 6. Assessment methods

Practical-technological:

Continuous evaluation (affective valuation, psychomotor valuation about the interest in the realisation, imitation ability, valuation of the work finished).

Cognitive valuation:

Need to pass the continuous evaluation to do the final evaluation.

Final evaluation: Oral test / Written topics.

### 7. Strengths

The high acceptance and motivation of students.

### 8. Weaknesses

The reduced number of credits devoted to this subject in the curriculum.

### 9. Innovations and Best practices

External visits to museums, expositions, etc...

### 10. Plan for future changes

To incorporate material for the development of infography methods. To increase the number of qualified teachers.

## **Section 3. Third Year**

### **3.1 Oral Surgery**

**Prof. M. Donado Rodríguez**

**Prof. R. Baca Perez-Bryan.**

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#### 1. Introduction.

Surgical Oral pathology is a common subject taught during the third year of the degree course, where the pathological processes of oral cavity requiring basically surgical treatment are entered upon. It consists of the pathology knowledge, complementary diagnosis, and its methods and the main therapeutical resources including the use of local anaesthetics.

#### 2. Primary Aims

The students have to be able for the diagnosis of pathological processes with surgical treatment.

To acquire the skills that allow to apply elemental surgical treatments.

To establish a therapeutical plan.

#### 3. Main objectives .

The students have to be able to:

- To perform a correct clinical record, examination and ask and understand the complementary diagnostic tests..
- To know the legal frame where dental radiology is performed and the patient, auxiliary staff and odontologist protection measures.
- To perform the radiographic intra-oral methods.
- To know the extra-oral radiographic projections and other methods for diagnosis by image applied in odontology.
- To discern the use of local anaesthetics and perform anaesthetic methods in superior and inferior maxillar, as well as its prescriptions.
- To know the required instrumental for exodontics and to perform simple exodontics in erupted teeth.
- To realise incisions and sutures in the oral cavity as well as to proper handle basic material in oral surgery
- To diagnose and to discern the therapeutic orientation of the dental retention.
- To indicate pre-prosthetic surgery specific methods.

#### 4. Hours in the curriculum

The teaching load is 17 credits (170 hours) 6 theoretical and 11 practical-clinical.

The students perform rotations by central reception and radio-diagnosis services, a total of 4 credits (40 hours).

The other 11 credits are obtained with pre-clinical practices and simulated clinic practices.

#### 5. Methods of learning/teaching

The subject development is annual, for that reason, there is a simultaneous performance of the theoretical contents and the acquisition of practical skills. The development begins with the diagnosis to reach more complex problems such as cystic and tumorous pathology.

The theoretical contents are grouped in 8 didactic units:

Diagnosis.

Anaesthesia

Surgical act

Exodontics.

Dental retention

Buccal and maxillo-facial infections.

Pre-prosthetics surgery.

Maxillar cysts and benign tumours

The program is explained with magisterial lessons of 50 minutes length and 10 discussion minutes. They are complemented with some seminars in the practical program.

The practical program has 9 modules with 70 hours of seminars and simulated clinic practices or acquisition of definite surgical methods and observation of recorded surgical sessions.

The students perform rotations by central reception, radio-diagnosis and exodontics services, for 40 hours.

#### 7. Strengths.

The facilities with pre-clinical laboratories and adequate audio-visuals can offer enough information to the student and the ability of improve psychomotor skills in surgery, by simulated clinic and pre-clinical working patterns.

#### 8. Weaknesses.

The relative lack of easy surgical patients and to be the first time the students are with patients, makes difficult the relationship student/patient. There will be needed some collaboration with the National Health Service or any other institution to obtain a bigger number of patients with surgical pathologies adequate for the students, or their stay in Hospitals.

#### 9 and 10. Innovations and Future Plans

One of the objectives obtained is a practical case report book for the students to write their experiences and perform a non sanction evaluation.

Within the future plans are the making of two video volumes and the introduction of clinical sessions and the agreements with health institutions.

*Visitors' comments*

- *Oral surgery is confined to dento-alveolar surgery. Students perform few extractions which may be related to a lack of patients. Visitors recommend the establishment of contact with a hospital to improve this situation and to give the students exposure to oral cancer patients and other problems in oral surgery.*

**3.2 Dental Therapeutical Pathology I and II****Prof. Javier Garcia-Barbero****Prof. J. A. Lopez- Calvo**1. Introduction

This subject introduces the students into the knowledge of the diseases that affect the teeth and its treatment. It comprises three clearly different parts: Dental pathology, operative dentistry and endodontic therapy.

2. Primary Aims

1. To know each disease affecting dental tissues, with respect to its aetiology, pathogenesis, clinical signs and symptoms, diagnosis and prognosis, as well as to establish the adequate therapy.
2. To perform properly the dental treatments for restoring the health, function and aesthetics to the teeth, both in operative dentistry and in endodontics.
3. To adopt the adequate attitude in relation with the patient's treatment

3. Main objectives

The students have to be able to:

- To perform the clinical and radiographic procedures to reach to the diagnosis of the different teeth diseases, and to establish the treatment plan.
- To perform restoration treatment of the teeth affected by caries, with adequate level of aesthetics and function
- To establish the therapy and to perform therapeutical treatments on dental traumatism
- To select and manage adequately the different filling materials.
- To identify and use adequately the operative dentistry and endodontic instrumental
- To perform the procedures to isolate the opearatory field
- To perform properly the different endodontic treatments in all dental groups.

4. Hours in the curriculum

The subject has 27 credits (270 hours) assigned, and it is taught during two academic years (3<sup>rd</sup> and 4<sup>th</sup>) with the following division:

Dental therapeutical pathology I (3<sup>rd</sup> year): 60 theoretical hours and 70 practical hours. During this year there are only performed pre-clinical practices

Dental therapeutical pathology II (4<sup>th</sup> year): 40 theoretical hours and 100 practical hours, mainly clinic on patients.

5. Method of learning/teaching

- Pre-clinical practices at laboratory and simulated clinic
- Clinical practices with treatment of patients under direct supervision.
- Theoretical lessons and seminars

### 6. Assessment methods

- Continuous evaluation of the pre-clinical and clinical practical activities
- Practical exams of pre-clinical activities
- Written exams on theoretical knowledge with either open answer questions or P.R.A.C. tests.

### 7. Strengths

- Good facilities for pre-clinical and clinical
- Controlled clinical practices, for having each teacher to control a small number of students
- High motivated students, that consider this as one of the main topics for their professional exercise.

### 8. Weaknesses

- Inadequate number of hours to finish practical program, as in pre-clinical as in clinical levels.
- It is difficult to co-ordinate the theoretical and practical lessons, starting the practices at the beginning of the year, without previous theoretical lessons.
- In spite of the progressivity the practical activities are performed, it is difficult for the students to overcome from the pre-clinical activities to the clinical activities with patients.

### *Visitors' comments*

- *Visitors were pleased to see the practical activities of these subjects. The clinic simulation laboratory could be used in rotation to improve the transition to the clinic.*

## **3.3 Dental Prosthesis I and II**

**Prof. Fernando del Río de las Heras**

**Prof. José Francisco López Lozano**

**Prof. José Ramón Casado Llompert**

**Prof. Juan Ramón Córdoba Sanz**

**Prof. Luis Sabán Gutiérrez**

**Suárez García, M<sup>a</sup> Jesús.**

**Prof. Teresa Sánchez Sánchez**

**Prof. Andrés Sánchez Turrión**

**Prof. Cesar Miegimolle García**

### 1. Introduction

Dental Prosthesis I and II program develops the study of restoration for partially and full edentulous patients. This restoration seeks its artificial reposition. Being morpho-functionally similar within the lost elements of the craniognathic system of the patient and the substitutive prosthesis.

It begins with the knowledge related to the craniognathic system as a substratum of prosthetic restoration and the functional aspects resumed in the analysis of the occlusion between natural dental arcs.

Acquisition of the physiologic and clinical data related to the partially edentulous patient and the restoration devices implied in the prescribed treatment.



Know the data from the partially edentulous patient and the different restoration methods, with removable prosthesis, fixed prosthesis, mixed prosthesis or prosthesis on implants.

The subject's profile is finished with diagnosis, prognosis and therapeutical treatment of the functional alterations of the masticatory system.

#### Main Objectives

- Enough knowledge of the body system that conform the subject of Dental Prosthesis.
- Enough knowledge of the clinical examination methods and the complementary data needed to set a diagnosis and a treatment plan, in dental prosthesis field.
- Enough knowledge of the physiologic occlusion basis and the methods for occlusive analysis.
- Enough knowledge to co-operate in the health education of the population, within dental prosthetics, highlighting the preventive and therapeutical aspects of it.

#### General objectives

- To describe the morphological characteristics of craniognathic system, in relation with its anticipated functions.
- To classify and to describe the mandibular positions and movements, justifying its prosthetic interest.
- To show the occlusion theories and its impact on prosthetic restoration.
- To describe the record and reproduction material of the craniognathic relations. To analyse its prescription and possibilities.
- To enumerate the limitations implied in the total edentulous human being.
- To analyse the possibilities and limitations of complete prosthesis to restore the edentulous patient. To point on the factors conditioning the prognosis..
- To define and to justify the restoration methods of inter-maxillar relations in edentulous patients.
- To know and to acquire the skills of the clinical and laboratory resources for the making of dentures. Critical analysis of its basis..
- To Explain the risks that the lose, more or less extended, of natural teeth means for the health.
- To enable for the patient examination, to prescribe a precise diagnosis.
- To establish with the morphologic and functional alteration happened, the prognosis for the restoration.
- To inform of the armamentarium actually available, for the solving of the problems derived from the dental arcs breakage.
- To establish prescription criteria for the different restoration options.
- The acquisition of skills for the acquisition of records and the preparation of dental abutments for prosthetic support.
- To stimulate the auto-evaluation and the needed of continuous learning.

#### 4. Hours in the curriculum

Dental Prosthesis I (3<sup>er</sup> year): 120 hours. (60 theoretical y 60 practical-clinical).

	Theoretical	Practical-clinical.
Propedeutics	20	20
Complete p.	18	40

Removable p.	22	10
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Dental Prosthesis II (4<sup>th</sup> year): 110 hours. (40 theoretical y 70 practical-clinical).

	Theoretical	Practical-clinical
Fixed p.	27	40
Mixed p.	2	
P. over implants	4	
Pathology A. Cgnt.	7	20

#### 5. Method of learning/teaching

- Magisterial lessons.
- Group methods:     Seminars  
                                  Clinical sessions
- Tutorial.
- Practical-clinical interrelation.

#### 6. Assessment methods

Practical-clinical ambit:

Continuous evaluation (affective evaluation, psychomotor evaluation about the interest in the realisation, imitation ability, evaluation of the work finished).

Cognitive evaluation:

Not eliminative test: short answer questions.

Final evaluation: Oral test / Written topics

#### 7. Strengths

Being Dental Prosthesis a subject with clinical application, it is very important the interrelation between theoretical contents and practical ones, between to know and to know how. There are correct technological practices of enrichment and complement the theory.

#### 8. Weaknesses

As the economic requirements are limited, there must be some clear, available and well planned practical objectives. So, with the number of students and the assigned hours for clinical practices, these are carried out in the Adult Integrated subject.

#### 9. Innovations and best practices

To increase seminars and clinical sessions for a better understanding of the treatments of patients with implants, with the orientation of knowledge given during the past years.

#### 10. Plan of future changes

If ratio teacher/student and the number of clinical practices increase, there will be possible that the teacher treat some patients together with small groups of students.

*Visitors' comments*

- *The preclinical and theoretical teaching is too long and the clinical component should be increased. There is a particular problem with the lack of clinical experience in fixed prosthetics. There may be a shortage of patients requiring*

*full removable dentures that might be solved by increasing collaboration with nursing homes. The visitors support the continued development of the integrated clinic.*

### **3.4 Orthodontics I and II**

**Prof. José M' Marin Ferrer**

**Prof. Juan Carlos Palma Fernández**

**Prof. Leonor Muelas Fernández**

**Prof. Juan José Alío Sanz**

#### 1. Introduction

The undergraduate students begin their learning on orthodontics during the third year in Odontology. The content of this third year is both theoretical and practical. Practical contents are mostly pre-clinical, aiming to teach the student for a performance of a correct diagnosis. During the fourth year they treat the patients previously diagnosed and in the fifth year they begin with the orthodontic, Odonto-paediatric and preventive therapies for a proper bucco-dental health.

#### 2. Primary Aims

At the end of their undergraduate studies, the students must be able to give a correct diagnosis of all malocclusions and evaluate the need of orthodontic treatments as well as how to begin with it. The students must to be able to treat patients without skeleton anomalies: Type 1 cases with problems of dental alignment and good facial pattern, cases with anterior crossed bite of a single tooth and cases with posterior crossed bite. Moderate Type II cases, 1<sup>st</sup> division.

#### 3. Main objectives:

- To know the dentition and normal growth development.
- To identify dental development, occlusive and craniofacial growth alterations.
- To discern the main aethiologic reasons that may alter craniofacial growth and development.
- To know the relationship between dentition development and facial growth.
- To perform a correct diagnosis of all malocclusions.
- To establish the role of orthodontics therapy in the health of the child.
- To identify the orthodontic cases that, for its complexity, must be derived..
- To develop the required skills for the bands and brackets setting.
- To use the functional devices and active plaques in orthodontics.
- To know the importance of retention to avoid the relapse of orthodontic treatments.

#### 4. Hours in the curriculum

During the third year the students have 40 of theoretical program and 60 hours for the practices. Among these, 40 hours are pre-clinical practices (laboratory and simulated clinic) and 20 hours for diagnosis.

In the fourth year there are 60 theoretical hours and 60 hours in the clinic with patients. Clinical practices are complemented in fifth year with the integration of orthodontics and Odonto-paediatrics treatment. The total clinical hours in the actual curriculum is 245.

#### 5. Method of learning/teaching

Theoretical teaching in third and fourth years are done by magisterial lessons. Also there are seminars of the more difficult understanding topics.

During pre-clinical period, the relationship student/teacher is 1 2/1. The student acquire the manual skills (management of wires, impressions, model making, setting of bands and brackets) and practical knowledge (cephalometric trace, study of models and integrated diagnosis) closely tutored by experienced teachers.

During the clinical period, the relationship student/teacher is 6/1. The students work in couples.

In the clinical period the students treat orthodontically two types of cases. Patients that have begun the treatment in the previous years and new patients.

The diagnosis and treatment plan of all treated cases are established in clinical sessions with the teacher and all the students from the group.

#### 6. Assessment methods.

Theoretical knowledge is evaluated with three partial exams and one final exam. Each exam has two parts, one with multiple choice questions, and other with short answer questions.

There is continuous an specific evaluation of each practice for the clinical and practical contents.

To pass the evaluation, it is required to pass the theoretical part as well as the pre-clinical and clinical practices.

#### 7. Strengths

The students have the opportunity to diagnose and treat orthodontics patients under close supervision of the teacher and they gain experience in the use of fixed, removable and functional devices.

#### 8. Weaknesses

There is a great difficulty to find new patients for the clinic that fulfil the required conditions to be treated for a pre-grade student. To solve this, during the whole year, the teachers select all patients coming to Orthodontics (general Reception).

Due to the length of the treatments, some of them can not be followed until the end by the same students.

When the treatment of the cases is more complex, these are derived to the Orthodontics Master course.

#### 10. Plan for future changes

Nowadays, the new study plan for Odontology is been studied, we hope the changes would be profitable for the students in their orthodontics learning.

#### *Visitors' comments*

- *The visitors felt that this was a well-run clinic giving the students adequate training in diagnosis but the students are unable to follow cases through their clinical years and so do not get the long-term follow-up of patients necessary for learning orthodontics.*

### **3.5 Odonto-paediatrics I and II**

#### **Odonto-paediatrics I (OPI)**

**Prof. Joaquin de Nova García**  
**Prof. Paloma Planells del Pozo**

**Odonto-paediatrics II (OPII)**  
**Prof. Angel González Sanz**  
**Prof. Jesús Calatayud Sierra**

### 1. Introduction

The students start with Odonto-paediatrics (OPI) during the 2<sup>nd</sup> cycle of the degree course, in the third year, beginning with the theoretical contents and the pre-clinical practices. During the fourth year they continue with Odonto-paediatrics II stressing on the clinical practices.

### 2. Primary Aims

From the theoretical point of view, the students have to be able to know the development of dentition and occlusion. Aetiology, diagnosis, prognosis, prevention and treatment of bucco-dental paediatric diseases. Control of behaviour and motivation. Nature and clinical application of materials used in Odontopaediatrics. From the practical/pre-clinical point of view, the students have to be able to perform, using simulated models, the usual restoration processes in paediatric odontology.

### 3. Main objectives

- To know the need of specific oral health learning for patient in growth and development.
- To recognise the normal characteristics of the oro-facial structures of the child.
- To describe the development process of temporal dentition and its interrelation with the supporting bone structures.
- To identify the usual development anomalies, its diagnosis and therapeutical principles.
- To diagnose and to know clinical manifestations of the usual bucco-dental paediatric pathologies and to perform these conservation treatments that restore the health and function of the tooth, adequately with the establishment of an individual treatment plan, with priorities and alternatives, sequentially shown.
- To evaluate the clinical consequences of the premature lose of temporal teeth and to apply the principles that ruled the adequate treatment to avoid alterations derived from this lose.
- To know the characteristics of the general growth of the child and to learn how to motivate and manage their behaviour to carry out dental treatments needed, with control of pain and anxiety.
- To teach a preventive sight to the children, their parents and relatives.
- To distinguish the general practice's limits.

### 4. Hours in the curriculum

In OPI, there are 5 annual credits distributed in 3 theoretical (30 hours) and 2 pre-clinical/clinical (20 hours).

The theoretical program of the subject is taught with a weekly lesson during the three terms of the academic year.

Having the student the previous knowledge to perform pre-clinical practices, these start in the 2<sup>nd</sup> term and are done in technologic laboratories during 7 weeks in sessions of 3 hours length.

In OPII, there are 20 theoretical hours and 45 practical hours available, mainly in the clinic with patients, during the two first terms.

### 5. Method of learning/teaching

In OPI, the theoretical teaching is given with magisterial lesson. Pre-clinical practices, performed in laboratories, intend to simulate, as close as possible, the conditions that they will have in their clinics.

In OPII, the students have theoretical lessons and they treat patients in the clinic under teacher supervision. There is also a tutorial system where each teacher attends the students they have assigned for the clinical practices. Finally, it is compulsory to prepare a monographic report on a topic of paediatric odontology with tutored support of the teacher and using the resources of the library at the Facultad de Odontología.

### 6. Assessment methods

In OPI, To evaluate the theoretical knowledge of the students there are 2 non eliminative partial exams with short answer questions or wider topics, including all subject. The evaluation of the pre-clinical practices is carried out with a continuous evaluation, by the practice teachers, of the reports performed and a final evaluation of all practices, by the teacher in charge of the subject. To pass the subject they have to pass the theoretical part as well as the practical one.

In OPII, the evaluation is done at 3 levels: 1) continuous evaluation performed by the practice teacher in the clinic evaluating their focusing, patient management, ergonomics, application of knowledge, among other data, 2) Quality of the monographic revision exercise done and, 3) theoretical knowledge of the subject with an exam with two parts a) 4 short answer questions and b) multiple choice questions. The three parts have to be passed individually and a 6 (in a scale 0-10) is required to pass the subject.

### 7. Strengths

The student is introduced in the dental treatment of the paediatric patient progressively, first in 3<sup>rd</sup> (OPI) with theoretical and pre-clinical contents, then in 4<sup>th</sup> year with more theoretical contents (complementary of the other) and clinic and finally in 5<sup>th</sup> year with the integrated paediatric subject that comprises prevention, odontopaediatrics and orthodontics at the clinic.

### 8. Weaknesses

Late beginning of the students in the clinical activity with more number of patients: Initially disintegrated view of the paediatric patient.

### 9. Innovations and Best practices

To incorporate the students in third year as auxiliary staff in the clinical practices of the students in fourth year. This will allow to find a more practical purpose of the knowledge acquired and from a practical point of view an immediate application of their skills. It is desirable to increase the number of practical credits. It is desirable to examine the necessity of extra-mural practices..

### 10. Plan for future changes

In the plans for the new curriculum there is examined the unification in one single group and academic year the OPI and OPII, without losing credits. This represents advantages and disadvantages in the teaching of the students.

*Visitors' comments*

- *This was a well-run clinic that seems to have a good number of patients. The students seemed to be well aware of the procedures they were carrying out and integrated prevention into their work.*

### **3.6 Preventive and Community Dentistry**

Prof. Rafael Riobóo García

Prof. Miguel López Bermejo

#### 1. Introduction

Preventive and community dentistry in the “stomatology” area is taught during the third year of the degree course. It aims to serve the student to value the comprehensive treatment of the patient, particularly in what entails education to prevent the disease or to limit its damage at the personal, individual, community or professional levels.

#### 2. Primary Aims

From the theoretical and practical point of view the student has to be able to evaluate and perform, individual and publicly, dental education, bucco-dental hygiene, dental epidemiology, specific prevention, knowing and applying the functions of an odontologist in the society and the design and management of bucco-dental health programs..

#### 3. Main objectives

- To evaluate the concept of prevention in odontology from the integral and integrated point of view.
- To know the oral environment and the oral cavity defence mechanisms.
- To recognise the importance of the microbial flora of/in the oral cavity and the immunological aspect of bucco-dental diseases.
- To evaluate and to act against the dental plaque and its impact on the health-disease processes..
- To know the remineralisation dynamics applied to the dental structures using adequately the remineralising therapies, specially the fluorides.
- To perform preventively the control of initial lesions from caries (diagnosis, monitorisation, sealers, fluorides, resin preventive cavities, etc).
- Evaluate, diagnose, classify and act for the dental caries risk, periodontal disease, dental traumatism, malocclusions and tumours, from the preventive point of view..
- To identify and control with preventive techniques and methods the transmission diseases, specially by organic fluids.
- To evaluate the risks of the dental treatments, establishing a quality control.
- To inform for the health, to educate and motivate the patient, individually and in groups, performing preventive programs at both levels.
- To evaluate the odontology from social and community point of view, identifying the problems and necessities, designing and organising the pertinent programs at public

and private levels, in the different stages of life, within the knowledge of health systems around the world and specifically the European and Spanish ones.

#### 4. Hours in the curriculum

The subject has a total of 8 credits (4 theoretical, 4 practical). The theoretical credits are taught during the first 3 terms and the practical ones during the last term, one day a week.

#### 5. Method of learning/teaching strategies

Theoretical part is given with magisterial lessons, during the whole year, helped by pre-clinical seminars and tutorial hours. Clinical part is performed in pairs of students with revision cases or new cases with preventive necessities, the patients are previously classified by the general reception services.

#### 6. Assessment methods

Theoretical evaluation is done by short answer question tests (3) all over each period, in case of not passing these 3, there is a final exam with short answer questions. Pre-clinical and clinical evaluation is continuous and done by the teacher in charge of the practices. The teacher assigned to the subject evaluate globally at the end every student.

#### 7. Strengths

Student evaluation of patient applying on their practices the patient auto-protection and protection from transmission of diseases ergonomically working.

#### 8. Weaknesses

Necessity of increase at least 1 theoretical credit (with influence on the dental knowledge for the community: health and social) and more practical contents established in collaboration with students in high years and extra-mural in the preventive public and private programs designed by the institutions.

#### 9. Innovations and Best practices

Prevention needs to be more integrated in the student curriculum in deeper collaboration with other subjects, teachers and departments..

#### 10. Plan for future changes

To evaluate the increase of 1 to 2 theoretical credits and diversify the practical contents during the three periods.

#### *Visitors' comments*

- *The visitors have too little information to comment on the activities but it would appear from the text that the students would benefit from clinical dental epidemiology at this stage of their course.*

## **Section 4. Fourth Year**

### **4.1 Odonto-paediatrics II**

(See Section 3)

### **4.2 Orthodontics II**

(See Section 3)

### **4.3 Dental Therapeutical Pathology II**



(See Section 3)

## 4.4 Dental Prosthesis II

(See Section 3)

## 4.5 Periodontology

The students in this subject are divided into two groups A and B having each one a different responsible professor and different teaching/learning strategies

### A Group

**Prof. Mariano Sanz**

**Prof. Victoriano Serrano**

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### 1. Introduction

Periodontology is taught in this study plan during the 4<sup>th</sup> and 5<sup>th</sup> years of the degree course. The objective of this subject is to introduce the student into the knowledge of periodontal biology and pathology, and in the periodontal treatment, in the context of integral patient treatment.

Periodontology is taught as an independent subject both theoretically and clinically. However, always in the context of total patient treatment and as the preparation basis for the Integrated Odontology subject in 5<sup>th</sup> year where Periodontology is integrated with the other clinical dental subjects.

The theoretical year consist on seminars, lessons and tutorial, where magisterial lessons are combined with group discussions and individual works assigned to individual students or groups of students. Here the students are stimulated to use educational resources tending to the self-learning, as videos, magazines, computer programs, Internet, etc. Using this methodology the majority of modern Periodontology is covered in this 4<sup>th</sup> year. This course is complemented with an optional subject denominated "*Complex Periodontal Prosthesis*" taught in 5<sup>th</sup> year where the students who want will have access to the more complex areas of treatment of severe periodontal patients, including specialised surgical methods as well as high technology restoration methods

The practical part of this subject includes a pre-clinical year on phantoms and a clinical year where the students perform the diagnosis, treatment plan and basic patient periodontal treatment. This clinical year is complemented with Integrated Odontology, given in 5<sup>th</sup> year and with an optional clinical year denominated "*periodontal clinic*" where the students can enlarge their periodontal clinical skills.

### 2. Primary Aims

At the end of the year the student has to demonstrate:

- Wide knowledge of Periodontology and related basic sciences.
- Wide knowledge of clinical medicine on what affects the interactions of periodontal and systemic diseases and periodontal treatment of medically compromised patients.
- Wide knowledge of periodontal epidemiology and the role of Periodontology in public oral health.
- Deep knowledge of clinical Periodontology.
- Clinical competencies in presentation, diagnosis and treatment of patients with mild and moderate periodontal disease.

- Clinical competencies in presentation and diagnosis of patients with severe periodontal disease.

### 3. Main objectives

The students must:

11. To be able to describe periodontium anatomy and physiology in health
12. To be able to describe the microscopic, clinical and radiological characteristics of periodontal diseases..
13. To be able to describe the role of oral bacteria in the aetiology of periodontal diseases
14. To be able to describe the role of the host in the aetiology of periodontal diseases
15. To be able to describe the pathogenesis and natural history of periodontal diseases.
16. To be able to describe the interactions between periodontal diseases and systemic diseases.
17. To be able to diagnose, document and formulate a treatment plan for the treatment of patients with periodontal diseases.
18. To be able to integrate the periodontal treatment into the integral treatment of the patient.
19. To be able to describe and carry out with efficacy the non-surgical periodontal treatment for the treatment of patients with mild-moderate periodontitis.
20. To be able to understand the surgical principles of the different periodontal surgeries as well as to understand its cicatrization.

### 5. Hours in the curriculum

Periodontology curriculum consists on a core course "*Periodontology*" taught in the 4<sup>th</sup> year of the degree course. This subject has a teaching load of 3.5 theoretical credits (35 hours) and 4 practical-clinical credits (40 hours). During the 5<sup>th</sup> year there are also offered 2 elective subjects. One subject with clinical credits only *Periodontal Clinic* with a teaching load of 6 credits (60 hours) to complement 4<sup>th</sup> year' and a subject called "*complex prosthetic- periodontal therapy* " with a teaching load of two theoretical credits (20 hours) and 4 practical-clinical credits (40 hours).

### 5. Method of learning/teaching

The teaching in Periodontology is performed by general and basic concepts taught during the theoretical lessons, complemented with self-learning systems and group study and discussion. Practical-clinical teaching is performed by associated part-time teachers. They are specialists in Periodontology with a close relation with the students. (1 teacher for each 6-8 students). In the first stage there are simulated pre-clinical practices using phantoms and then all diagnosis and clinical procedures there are performed on patients under the supervision of clinical instructors..

### 6. Assessment methods

Continuous evaluation: The students are evaluated by the instructors every day during the practical-clinical sessions. It is evaluated the motivation level as well as the treating of patients, fulfilment of infection control regulations, clinical competence and knowledge of the procedures

Knowledge evaluation: the students are evaluated at the end of every period of four months about their knowledge of the subject. This evaluation is done with a

combined evaluation methods (essay, short answer questions and multiple choice questions)

Final evaluation: At the end of the year the students must pass a final oral test to evaluate their knowledge as well as their clinical competence. This is a global test and it takes into account the continuous evaluation in the clinic and the results of the partial exams. .

### 7. Strengths

A team of clinical teachers/instructors very competent and motivated produce that the number of clinical hours, unless very small, will be very useful for the students. The study plan allows the motivated students to complement their learning in Periodontology with the optional periodontal subjects, permitting a not only basic learning but reaching the maximum levels of scientific and technologic development. The team of teachers is also active in investigation projects and international projects transmitting and producing enthusiasm to the students, motivating the learning.

### 8. Weaknesses

The hour limitations for the practical-clinical part of this subject are evident. Unless partially compensated by the offer of optional subjects, those students that do not choose them, will finish their degree course with a clinical-practical training on Periodontology that we estimate as deficient. In the same manner, although the idea of continuing periodontal practice during 5<sup>th</sup> year in the Integrated Odontology is excellent, the lack of co-ordination between the responsible parts of both years may create confusion to the students. It has to be stressed the importance of the maintenance phase, as well as the absence of dental hygienist training in the university ambit, that does not create in the student the required importance for the group work, very important fact in oral hygiene and management of periodontal patients.

### 9. Innovations and good practice

1. Stimulate the students to direct their training and develop analytical and critical attitude of the knowledge sources.
2. Stimulate the students to perform group working, organising discussion and debate groups.
3. Stimulate the students to use knowledge sources different than text books and class notes, mainly articles taken from magazines, Internet, videos, etc.
4. Stimulate the students to have an integrated mind and consider the patient as a treatment entity

### 10. Plan for future changes

In the actual process of curricular change, our objective is to increase the practical-clinical hours so that all students will have competencies according to the anticipated objectives for our subject. These objectives, on the other side, agree with the clinical competencies recommendations of the European Union advisory committee for dental education as well as the recommendations of the European Federation of Periodontology.

Our objective is to introduce progressively a more active education where the learning leads over the teaching and where the educational principles through problem solving and through the scientific evidence basis, will be gradually introduced in this subject

## **Group B**

**Prof. Antonio Bascones Martínez**

**Prof. Juan Antonio García Nuñez**

### 1. Introduction

Periodontology is included in the medicine and Bucco-facial Surgery Department. Its profile is the periodontal structures morphology. Periodontal unit functions. Periodontal and clinical pathology. Surgical-medical treatment. Clinical application of materials used in Periodontology.

### 2. Primary Aims

To introduce the students into periodontal treatment, in the context of patient integral treatment

### 3. Main objectives

To familiarise the students with the methods, instruments and basis of radicular curettage and smoothing therapy. To discuss the methods of oral hygiene and the patient motivation method.

The effects of non-surgical treatment. The students must know the curettage and smoothing limits using clinical criteria.

The students have to be able to perform a critical re-evaluation of their periodontal work.

To introduce the students into surgical periodontal procedures, by live demonstration of a method or illustrating it with slides. The student must be introduced into these methods in the context of integral patient treatment.

The students have to be familiarised with the periodontal surgery complications, how to avoid them, if possible, and how to treat them if they appear. The students have to be able to describe the access flap and the apical reposition flap.

The students have to be able to appreciate the maintenance importance in the long term treatment plan.

To fulfil these objectives, it is expected that the student will be able to perform the following clinical procedures:

Total periodontal exploration.

Aetiologic exploration.

Periodontal diagnosis and prognosis determination.

Periodontal treatment plan.

Teaching and motivation of oral hygiene methods.

Supra and sub-gingival radicular curettage and smoothing.

### 4. Hours in the curriculum

The Periodontology subject has a total of 75 hours assigned (7,5 credits) correspondent to 35 theoretical hours (3,5 credits) and 40 practical hours (4 credits). It is complemented with periodontal clinical subject with 60 hours (6 credits) and complex prosthetic periodontal therapeutics with 20 hours (2 theoretical credits) and 40 hours (4 practical credits).

### 5. Methods of learning/teaching

Theoretical program is given in 35 magisterial lessons of 50 minutes length. Practical program is developed in 40 hours with seminars and clinical practices.

In Periodontology, all hours are focused on the clinic practices (with a total of 90 hours).

### 7. Strengths

Clinical practices are the method that better stimulate student motivation. There are performed clinical case reports, treatment plans, supra-gingival prophylaxis, sub-gingival curettage and smoothing, and maintenance..

The students help in the surgeries done at the Periodontology Master course.

### 8. Weaknesses

There is less theoretical load in the subject of Periodontology. It is desirable to increase both.

#### *Visitors' comments*

- *The visitors should like to compliment the introduction of student-centred learning and evaluation of outcome. They would like to encourage these developments.*

## **4.6 Oral Medical Pathology**

**Prof. Antonio Bascones Martínez**

**Prof. Miguel Lucas Tomás**

**Prof. Germán C. Esparza Gómez**

**Prof. Victoriano Serrano**

### 1. Introduction.

Oral medical pathology is included into the common subject oral surgical-medical pathology, divided in two subjects oral surgical pathology (taught in third year), and oral Medical Pathology taught in fourth year of the degree course.

The subject comprises propedeutics, pathology, clinical, clinical and differential diagnosis, prognosis, prevention and medical treatment of non-dental oral diseases that affect the oral mucous, salivary glands, temporomandibular joints, maxillar bones and oro-facial neuromuscular structures; as well as the study of systemic diseases with oral impact.

### 3. Main objectives

To know how to perform a case report to identify systemic problems (cardiovascular, haemorrhagic, allergic, etc.) that may modify the dental treatment and may endanger the life of the patient.

To acquire knowledge and experience on all clinical examination methods.

To know the systemic diseases with oro-facial impact.

To perform the prevention and precocious diagnosis of general diseases with oro-facial impact.

To recognise and manage adequately the emergency situations in the dental clinic.

To diagnose the diseases with medical treatment of the oral mucous, salivary glands and annexed tissues.

To manage adequately the patients with systemic background.

### 4. Hours in the curriculum

The subject of Oral Medical Pathology have a total of 6 credits assigned: 4 theoretical (40 hours) and two practical/clinical (20 hours).

5.Method of learning/teaching

Theoretical program is taught in 40 magisterial lessons of 50 minutes length each one. Practical/clinical program is performed in 10 seminar/clinical sessions and 10 clinical practices.

7.Strengths.

Clinical practices are, no doubt, the method that most stimulate the student motivation. Here, the students perform case reports under the supervision of a teacher, observe as many pathologies possible, satisfy the objectives of identifying the more remarkable lesions and learn the procedures of communication with the patient and the transference degree established between the professional and the sick patient.

8. Weaknesses.

There would be desirable more curricular load, theoretical and practical, for the given extension of the contents of the subject.

*Visitors' comments*

- *The ratio of theoretical to practical hours should be changed in favour of practical classes. The importance of early diagnosis of oral cancer should be emphasised and demonstrated in this course.*

**Section 5. Fifth Year****5.1 Adult integrated dental Clinic****Prof. Dr. Jaime del Rio Highsmith**1. Introduction

This subject is designated to face the odontologist with the patients, in the usual conditions of the general dental clinic. It is taught during the last year of the degree course and due to its synthesised and applied condition, requires the approval of all previous subject.

2. Primary Aims

- To train the students to acquire competency in comprehensive dentistry .
- To teach diagnostic and therapeutic methods for the treatment of patients.

3. Main objectives

A – To capacitate the student to:

- Establish a positive dentist-patient relation.
- Motivate the patients in oral health.
- Integrate and apply on their clinical activity all knowledge and skills acquired in their previous training years.
- To establish therapeutical alternative prescriptions and sequential treatment plans.
- Establish clinical success-failure criteria.
- Motivate for their improvement and continuous training given the limitations that their short experience carries out.

B – To provide social dental service to the community.

C – To obtain epidemiological information.

D – To develop experimental studies on different clinical methods and the use of different materials.

#### 4. Hours in the curriculum

- Total Hours: 175.
- Clinical credits 155 hours.
- Theoretical credits 20 hours.

#### 5. Method of learning/teaching

- Continuous and integrated practical-clinical teaching.
- Personalised teaching 1 teacher/8 students.

#### 6. Assessment methods

- Continuous evaluation of clinical practice.
- Final oral exam on theoretical contents.
- Monographic exercise.

#### 7. Strengths

The personalisation of the teaching and the clinical practice on patients allowing the performance of a diagnosis, and global treatment plan of this patient made by the student.

#### 8. Weaknesses

The lack of clinical credits to attend a bigger number of patients.

#### 9. Innovations and best practice

- Extra-mural visits to clinics.
- Better teacher/student relationship to increase control.
- Visits to prosthetic laboratories to know their activity.
- Possibility of perform clinical and epidemiological investigation.

#### 10. Plan for future changes

We would like to increase the number of teaching hours and improve the relationship teacher/student.

More availability to perform clinical and epidemiological investigation programs.

#### *Visitors' comments*

- *A very good innovation in the dental curriculum, at present run by the prosthetic department. Visitors recommend more input of staff from the other departments and an increase of the number of patients treated in this course. The lack of performing fixed prosthodontics puzzled the visitors who recommend that this be changed in the future.*

## **5.2 Child integrated dental clinic**

**Prof. Elena Barberia Leache**

**Prof. Pedro García Cardaña**

### 1. Introduction

The subject is thought as an approximation to the professional practice that the students are going to perform when finishing their studies and give a general odontologist attention. It is based on the acquired knowledge during the previous years in subjects belonged to the department (preventive and communitarian odontology, odontopaediatrics I and II, orthodontics I and II) as well as subjects taught by other departments.

### 2. Primary Aims

Clinical dental methods and procedures applied to the prevention and anatomic-functional restoration in children in a sequential and integrated way.

### 3. Main objectives

- Integrate and apply the theoretical and practical knowledge acquired during the previous years.
- Realise the integral plan of treatment for the patients they have during the practices.
- Hierarchise the patient treatment needs.
- To perform the treatment when its complexity adjusts their abilities.
- Determine when to derive a patient and the specialist they have to be submitted.

### 4. Hours in the curriculum

Theoretical part is developed in 10 credits during the 2<sup>nd</sup> period and the practical part in 11.5 credits over the three terms.

### 5. Methods of learning/teaching

Theoretical hours are used to perform clinical sessions with real patients. To do this, a group of 6-8 students and their teacher select a patient and proceed to prepare the clinical session using audio-visual material. The session consist on a explanation of the case within 30 minutes and a later discussion with all the students moderated by the teachers. During the practical part, the integral clinical treatment of some patients, selected by complexity degree, is performed.

### 6. Assessment methods

Theoretical evaluation is done based on the following criteria: a) assistance and quality of the presented clinical case, b) opportunity and quality of the presented clinical case, and, c) Presentation according to the clinical case dossier instructions. The practical evaluation is continuous, performed by the practices teacher during each session in the clinic.

### 7. Strengths

The integration in the subjects that simulate the future actuation in professional practice.

### 8. Weaknesses

Necessity of more practical hours.

### 9. Innovations and best practices

To increase the number of practical credits.



### 10. Plan for future changes

There are not expected changes in the philosophy or the development, but there are foreseen changes in the patient pathology profile that will modify the clinical work.

#### *Visitors' comments*

- *The visitors have the same comments to make as for section 3.5 but would also endorse the view of the teachers that more clinical exposure would be beneficial.*

## **5.3. Adult special patient integrated dental clinic**

**Prof. G. Hernández Vallejo, Prof. A. García Peñín**

### 1. Introduction

This is a common subject taught in fifth year of the degree course and that comprises the study of those patients who, a systemic clinical congenital or acquired condition, obliges to have diagnostic-therapeutical and specific management measures, that may contain from physical and human infra-structures to specific medicament protocols.

### 2. Primary Aims

The knowledge of this systemic pathology that makes that the dental assistance protocol must be modified.

Development of therapeutically protocols depending on the systemic pathology of the patient.

### 3. Main objectives

At the end of the year the student has to be able to:

- Identify those special patients based on the systemic pathology shown, through the case report performance.
- Find out the specific data to be taken into account in special patients and perform a treatment protocol.
- Describe systemic alterations to be targeted in that patient during the stomatologic treatment.
- Identify the possible adverse events and drug interactions that may occur to these patients due to their basic pathology or the therapeutical treatments they are submitted.
- Identify these situations that require integrated work with other specialities within the health area and to establish an integrated treatment plan sequencing the treatment and hierarchising the different therapeutical phases.
- To evaluate adequately the stomatologic treatment response based on the patient pathology.

### 4. Hours in the curriculum

The subject is mainly practical and it has a theoretical load of 0.5 credits (5 hours) and 2.5 practical credits (25 hours).

### 5. Method of learning/teaching

The theoretical program of 5 lessons is carried out by magisterial lessons of 55 minutes length, and the practical program of 2.5 credits (25 hours), in seminars where the student get the proposed objectives, by designing and performing work protocols on different pathological entities.

*Visitors' comments*

- *The visitors were not able to see this clinic in action.*

**5.4 Paediatric special patient integrated dental Clinic****Prof. Joaquín de Nova García****Prof. Paloma Planells del Pozo**1. Introduction

The students start the Paediatric special patient integrated dental Clinic

At the end of the 2<sup>nd</sup> cycle of the degree course during the 5<sup>th</sup> year. In this year, it is given the maximum priority to the practical training. Their training level may allow them, not only to face and solve more complex dental pathologies but also to be able for diagnose and treat these patients whose general problems added to their dental problems make them special with respect to the dental management.

2. Primary Aims

The subject has to provide the student with clinical dental methods and procedures applied to the prevention and anatomic-functional restoration in children sequentially and integrated in disabled high risk paediatric patients.

3. Main objectives

- To systematise the previous study for the dental assistance performed in every child with general status affection suspected.
- To know how to evaluate the risks for special patients that are going to be submitted to dental treatment.
- To know the ruling principles for dental assistance in children with systemic affection establishing the priorities on they're dental treatment.
- To perform a preventive program adapted to the necessities and disabling of the patient.
- To co-operate and give advice in the realisation of preventive programs to be applied in disabled population groups.
- To know how to manage a paediatric disabled patient during the dental treatment.
- To initiate the students in the management of auxiliary devices to facilitate the dental attention in special paediatric patients (sedation with nitric oxide, pharmacological sedation, general anaesthesia).
- To teach and motivate the student the importance of inter-disciplinary and inter-professional group work when in the dental attention of high-risk children.

4. Hours in the curriculum

The credits of the subject are divided in theoretical (0.5, 5 hours) and practical/clinical (2.5, 25 hours). The theoretical program is done with a weekly class during the first period of the year. When the student is initiated in the theoretical knowledge that allows them to perform the clinical practices, begin with them in this period. Practices are done in the clinics, for 7 weeks, in sessions of 3 hours length.

5. Method of learning/teaching

Theoretical part is taught with magisterial lessons and seminars. The clinical part, with patients previously selected by their difficulty, all over the practical period during the first term of the year. The practices are performed in pairs of students with a patient in each clinic. Each student has, at least, one new paediatric special patient assigned (2 for couple) and he previously has examined revision patients from last year. The teacher in charge of the practice who has previously been trained in the management of this type of patients closely supervises the students. In the general reception service, or specific institutions, patients are selected according to a complexity level (management and pathology) adapted to the abilities of the students.

#### 6. Assessment methods

Practical and theoretical parts are evaluated individually. The first one by a written test with short answer questions and a revision exercise, done through the year. The clinical part evaluation is done continuously during the practices and the evaluation of clinical cases treated by the teacher in charge of the subject. To pass the subject, they must pass the theoretical part and finalise the treatment of the patients with an adequate quality level.

#### 7. Strengths

Reached the training level that let the students go over more complex dental pathologies, they are faced to the management of disabled paediatric patients and with systemic associated pathologies. Likewise, during the final period of their training they are able to dental treat this population.

#### 8. Weaknesses

Late beginning of the students of the clinical activity with disabled paediatric patients. Little theoretical activity and poor clinical practice with special paediatric patients, that, being this end of their training period, this lack is difficult to be solved.

#### 9. Innovations and best practices

To incorporate the students in 4<sup>th</sup> year as auxiliary staff in the clinical practices of the students in 5<sup>th</sup> year. This will allow them to familiarise in the paediatric special patient management. This will permit the general knowledge in health reached in the degree courses. To increase the interrelations faculty-University hospital, schools and educational centres for disabled patients, and to concert the dental treatment, to motivate the necessity of treat adequately the paediatric special patient, and to increase the diversity and number of practices with multidisciplinary group work in different ambits.

#### 10. Plan for future changes

To valorise the increase of credits for the subject and to give more power to the practical part.

#### *Visitors' comments*

- *The visitors were not able to see this clinic in action*

## **5.5 Surgical Maxillo-facial Pathology**

**Prof. J.M<sup>a</sup> Sada García-Lomas.**

### 1. Introduction

Surgical maxillo-facial pathology is a non-common subject, compulsory of the centre that is taught during the fifth year of the degree course, where those pathological processes of the maxillo-facial area with treatment mainly surgical are studied. It comprises the aetiology, pathogenesis, diagnostic methods and therapeutical principles and methods.

### 2. Primary Aims

- To train the student to be able to diagnose properly the pathological processes that may affect this area.
- To facilitate the learning of the basic surgical application methods in traumatic and infectious processes.
- To be able to know the limits of their personal ability in surgical aspects and the necessity of submit some treatments to adequate specialists.
- To develop their knowledge to collaborate in preventive assistance and in the health education of the population, with special attention to the tumour pathology.

### 3. Main objectives .

The students must be able to:

- To perform a correct clinical record and ask and understand the complementary diagnostic tests for the different pathological cases.
- To refer the basically clinical and radiological characteristics of the salivary litiasis as well as its treatment plan.
- To know the terminology, clinic, diagnosis and diagnostic tests by image of major salivary glands tumours and the particularities of the minor, as well as the prognosis and the treatment plan.
- To describe the pathologies, the diagnostic approach and the treatment plan of the A.T.M. pathology.
- To practice the evaluation of a maxillo-facial traumatism and to propose a therapeutical treatment.
- To apply the emergency immobilisation methods in maxillar breakage, using interdental joints and ferules.
- To suspect a tumour lesion on a suggestive clinical image, and ask and understand the complementary diagnostic tests that allow them to confirm or reject the suspect.
- To know and explain the possible aetiologies of tumour lesions and the influence of risk factors for collaboration in oral cancer prevention campaigns.
- To describe the congenital and acquired deformities more important and frequent in the maxillo-facial area and the therapeutical alternatives.

### 3. Hours in the curriculum

The curricular load is 5 credits (50 hours) 3 theoretical and 2 practical-clinical. The students perform rotations in the radiology and reception services.

### 5. Method of learning/teaching

The theoretical program is explained in 30 magisterial lessons of 50 minutes length with 10 minutes for discussion and problem solving.

The practical program is done in 10 clinical sessions that include video projection of surgical methods and the performance of activities of simulated clinic and rotations for the clinical services of the School.

#### 7. Strengths.

The realisation of clinical sessions and the use of audio-visual methods allow transmitting many clinical images to the student.

#### 8. Weaknesses.

The absence of an associated Clinical Hospital impedes the direct contact with the patient in some pathology that can not be ambulatory examined.

#### 9. and 10. Future plans and innovations

To improve the videotheque as a resource of simulated clinical experience for the students.

To include the rest of the school in the open clinical sessions to enrich the discussions.

#### *Visitors' comments*

- *The visitors were not able to gain an insight into this clinic but the lack of sufficient contact with a hospital was clearly a serious drawback to development in this subject.*

## **5.6 Legal and forensic Dentistry Optional subjects in Second Cycle**

### **5.7 Dental emergencies**

**Prof. L. Blanco Jerez.**

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#### 1. Introduction.

Dental emergencies is an optional subject in second cycle of the degree course, that comprises the study of these situations of medical emergency that may occur during the dental activity and those situations of dental pathology whose treatment could be considered as urgent. To do this subject the student must have passed the Oral Medical Pathology, Dental Therapeutical Pathology II and Odonto-paediatrics II.

#### 2. Primary Aims

- To develop in the student the ability of facing an emergency situation in the dental clinic.
- To recycle the student in the RCP basic methods and the making of actuation and evacuation plans.
- To mind the student on the necessity of performing a group work in emergency situations and to train and remain operative the staff and the material methods required.

### 3. Main objectives .

At the end of the year the students have to be able to:

- Distinguish between dental urgency and emergency or medical urgency in the dental clinic.
- Know, put in order, maintain and use the elements of the emergency case, as the drugs that constitute the first aid kit.
- Be conscious of the necessity of training the dental staff and be able to establish an adequate training external or internal plan.
- To perform RCP methods, alone and in groups, as well as to establish and carry out an evacuation plan.
- To prevent the drug used in dental clinic adverse events and the possible interactions with therapies or basic medical pathologies of some patients.
- Identify the pain, infection or traumatism processes that require urgent assistance and to apply the adequate therapies..
- Write emergency protocols and to structure the clinic and the actions to solve possible emergencies that may appear.

### 4. Hours in the curriculum

The teaching load is divided in 2 theoretical credits and 6 practical credits with a total of 80 teaching hours.

### 5. Method of learning/teaching

The theoretical program is given in teacher explanations of 30 minutes and later discussion of the topic with the students during other 30 minutes. The topic of each lesson is previously known by the students and there are at least two assigned teachers in each session to enrich the discussion.

The practical activities are carried out managing the reanimation material, performing simulated practices with a models and between the students, group assistance to the dental emergencies that come to the School, and 10 seminars about the complementary topics to the theoretical program proposed by the students and prepared and explained by themselves in groups with the supervision, advisory and preparation of the group discussion of the group of teachers..

### 7. Strengths

Being an optional subject, the group of students is reduced to 50 with a positive attitude.

The atmosphere created is relaxed and it helps the learning.

There are enough funds for simulation material.

The possibility of having complementary topics during the seminars avoid the system strictness and helps the actualisation and being a subject fitted for the students each year.

### 8. Weaknesses

Being the first year of this subject, it has to be established and regularised the timed devoted to each aspect. Nevertheless it is intended to have a dynamic subject to go over this difficulty.

The worst lack is not having a pre-established Emergency service as Reference Service that would help as a practical activity.

### 9 and 10. Future plans and innovations.

The organising of an Emergency Service, at least initial and with restricted hours, dependent from the General reception Service where the pre- and post- graduated training scales would participate, will be a profit to finish the training of students, and is being studying for its future implantation.

*Visitors' comments*

- *The visitors consider this subject extremely important in the teaching of diagnostics. Recommendations are given to encourage the development of a structured dental emergency course to be included in the core curriculum.*

*Visitors' comments on 5.8, 5.9, 5.10, and 5.11*

- *The visitors were pleased with these electives and encourage their further development.*

## **5.8 Implantology**

### **Prof. B. Guisado Moya**

#### 1. Introduction.

Implantology is an optional subject of second cycle of the degree course taught in 5th year, that comprises theoretical, pre-clinical and clinical contents related to the diagnosis and surgical treatment of patients subsidiary of a pre-prosthetic therapy derived from the setting of osteo-integrated implants.

#### 2. Primary Aims

To provide the basic knowledge on diagnosis and surgical plan of the implantologic program.

To train the students, by the investigation developed in the department and the corresponding sources, in the knowledge of the therapeutical possible possibilities by osteo-integrated implants.

To discern patient integral diagnosis criteria and basic treatment plan due to the dental restoration demand by implantologic methods.

#### 3. Main objectives

At the end of the year the student have to be able to:

To know the terminology in implantology.

To know the applied to dental implants anatomy and physiology.

To perform a case report of implantologic patients.

To perform a radiological diagnosis of the osseous availability.

To transmit the patient the treatment plan and the pertinent complementary information.

To manage models, ferules and radiological plaques.

To use specific surgical material of osteo-integrated implants, setting simulated implants in training models.

#### 4. Hours in the curriculum

The teaching load is divided in 2 theoretical credits and 6 practical credits with a total of 80 teaching hours. The practical hours are divided in 20 pre-clinical activity hours and 40 clinical hours.

### 5. Method of learning/teaching

There is a simultaneous development of the acquisition of theoretical and practical knowledge. It begins with the knowledge of the terminology, following with the osseous availability diagnosis and the basic surgical method, to finish with the analysis of the possible complications. The technical contents are given with 20 magisterial lessons of 60 minutes length. The practical aspects are divided in 5 pre-clinical modules and 5 clinical ones.

### 7. Strengths.

The implantology service has wide experience in the implantologic development, being the first on post-graduated training in implantology.

### 8. Weaknesses.

The cost of the material for the practices.

The lack of patients due to the systematisation of treatments and the economical impact on the patient.

### 9 and 10. Future plans and innovations.

To look for co-operation with commercial enterprises which give practical material for the students.

## **5.9 Complex Periodontal Prosthesis**

**Prof. Mariano Sanz Alonso**

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### 1. Introduction

Complex periodontal prosthesis is an elective subject of 2<sup>nd</sup> cycle taught during the 5<sup>th</sup> year of the degree course. The objective of this optional subject is to initiate the students in the diagnostic and therapeutical processes of high technology and complexity for the severe periodontal patient restoration. There are included specialised surgical methods and advanced prosthetic restoration methods.

The theoretical part of this subject includes seminars on the complex patient treatment plans as well as the presence of students in advanced surgeries done by the post-grade students at the Periodontology Master Course.

### 2. Primary Aims

At the end of the year, the students that have chosen this subject must know the different therapeutical possibilities of a patient suffering severe periodontitis.

### 3. Main objectives

The students must have:

- Wide knowledge of periodontal surgical methods
- Wide knowledge of muco-gingival surgical methods.
- Wide knowledge of surgical methods whose objective is the regeneration of periodontal tissues.
- Wide knowledge of surgical methods whose objective is alveolar bone reconstruction
- Knowledge of different therapeutical procedures for the patient suffering severe periodontitis.



#### 4. Hours in the curriculum

This subject has a teaching load of 6 credits, 2 theoretical ones (20 hours) and 4 practical-clinical credits (40 hours).

#### 5. Method of learning/teaching

Due to its mainly practical clinical contents, this subject is taught with seminars on treatment plans, theoretical, and with attendance to surgical sessions in its clinical part. The seminars will be co-ordinated by a teacher and a post-graduate student that will choose a type case to explain one of the selected therapeutical procedures, will give a theoretical introduction on the basis and method of the procedure and will present a demonstrative patient with this procedure. The students will have the opportunity to interact in all diagnostic and therapeutical stages of this demonstrative case.

#### 6. Assessment methods

- Continuous evaluation: Due its optional subject, the students are evaluated by the different teachers every day during the practical-clinical sessions. Also their motivation and interaction levels are evaluated during the clinical seminars.
- These students who want a better mark will be asked to perform a therapeutical procedure revision exercise, showing a demonstrative case which they direct participated.

#### 7. Strengths

Optional and mainly practical subject, where the students complement the training acquired in the previous years in Periodontology as in Prosthesis and where they acquire the knowledge of more advanced diagnostic and therapeutical methods. The objective is not to be competent on these topics, but to know them, and to know the utility and the efficacy of them.

#### 8. Weaknesses

This is a merely informative subject, so the contents are nor treated in depth.

#### 9. Innovations and best practices

- To stimulate the students to direct their training and develop analytical and critical attitude of the knowledge sources.
- To stimulate the students to design their own curriculum allowing to choose some subjects that, being not basic for their training as odontologists, will be worth during their professional future.

### **5.10 Pathology of oral tumors**

**Prof. F. Llanes Menendez**

#### 2. Primary Aims

It is intended that the students of this subject know the mouth and salivary glands neoplasms, as well as the differential diagnosis of these tumours with other pathologies of malformation, dystrophic, inflammatory types or other non tumour growth alterations.

It is given special attention to the clinical-pathological interactions from the basis of the knowledge of the morphology of pathologic anatomy in oral tumours.

It is also the objective of this subject, due to the way it is taught, to initiate the students in the bibliographical search, theme preparation and public explanation in the

most adequate way (slides, transparencies, computer projection, video performances, etc.).

#### 5. Method of learning/teaching

The subject is taught during the 3<sup>rd</sup> period divided its teaching load in 3 weekly theoretical hours where the students explain the topics under the supervision of the teacher in charge of the subject. The topics are distributed in groups of 3-4 students that look for the actualised bibliography and prepare the didactic material, considering these as a practice. Then they present the topic to be commented and discussed with the teacher and the rest of students.

The class attendance is controlled in a daily basis by roll call, and the debate participation is taken into account for the evaluation, being required a minimum of five participations.

#### 6. Assessment methods

There are ordinary and extraordinary exams, with optional character, to improve the provisional qualifications assigned to each student by the continuous evaluation. There is a written exam with two compulsory explanation of topics previously explained and debated in theoretical lessons.

The provisional qualification is said at the end of the year and comprises the class attendance, the preparation level of the individual topic assigned, the quality of the explanation and defence of it, the participation in the debates and the didactic material used.

During the last lesson hour of the year, known by the students the provisional qualifications, there is an interview enquiring a program review and development of the subject and teacher interventions. Historically, there is consigned in these enquiries a high degree of satisfaction in the students and there are modified some aspects in relation with the observations given by the students.

#### 8. Weaknesses

Due to the limited time and to the subjects explanation by the students system, it become necessary to limit up to 50 the number of admitted students, because the first teaching years, an exponential increase in the number of students was observed, and this way of teaching is not possible with a hundred admitted students.

## **5.11 Complex Dental Therapeutics**

**Prof. Jose Carlos de la Macorra García**

### 1. Introduction

This subject introduces the student into the usual complex therapeutical procedures in dental surgery and endodontics.

### 2. Primary Aims

At the end of the period, the student must know the diseases affecting the dental tissues, with respect a their aetiology, pathogenesis, clinical signs and symptoms, diagnosis and prognosis, to evaluate the difficulty of the prescribed treatment and to establish the adequate therapy.

At the end of the period, the student must know how to perform correctly the complex dental treatments to restore the health, function and aesthetics to the tooth, as in dental surgery as in endodontics ambit.

At the end of the period, the students must be able to adopt the adequate attitudes related with the treat of patients.

### 3. Main objectives

At the end of the period the students have to be able to:

Identify, prescribe and apply the basic complementary anchorage (pins, posts, bolts).

To indicate and produce great reconstructions, e.g. these that are bigger than ½ the inter-cusp distance or incision area.

To prescribe and produce non-strained pre-prosthetic stumps in devitalised teeth.

To establish the prescription of non-usual endodontics methods and endodontics surgery.

### 4. Hours in the curriculum

The subject has a total of 10 credits assigned and is taught during the 5<sup>th</sup> year, with the following distribution: 1 theoretical credit and 9 practical credits

### 5. Method of learning/teaching

Clinical practices with treatment of patients, under direct supervision.

Theoretical lessons and seminars

### 6. Assessment methods

Continuous evaluation of the pre-clinical and clinical activities.

Written test of the theoretical contents.

7. Strengths

Good facilities for the clinical practices

Controlled clinical practices, for having each teacher to control a small number of students

Highly motivated students, that consider this as one of the main topics for their professional exercise.

8. Weaknesses

Insufficient number of hours to finish adequately the practical clinical program.

9. Innovations and best practices

Highly motivated teachers

Modular groups with some continuity of instructors.

10. Plan for future changes

Nothing to include

**DentEd Visitation**  
**Faculty of Odontology**  
**University Complutense de Madrid**  
**Spain**

**Section II Visitors Comments on School**

**12<sup>th</sup> –16<sup>th</sup> February, 2000**

# **Dented Visitation to the Faculty of Odontology, University Complutense de Madrid, Spain**

**12<sup>th</sup> –16<sup>th</sup> February, 2000**

## **Visitors Comments**

### **Prologue**

DENTED is a thematic network project supported by the European Union aiming at convergence in standards in European Dental Schools. Towards this aim dental schools have been invited to host a team of international visitors appointed by DENTED in their schools.

The visitors very much appreciated the co-operation of the academic staff and students of the Faculty of Odontology, University Complutense de Madrid especially for their openness and frankness and the visitors would like to thank all those involved. In particular the Faculty should be congratulated on the detailed material that was provided in advance for the visitors and for its organisation of the visit. The visitors would like to thank the organisers for their generous hospitality during the visit.

### **Aims**

It is the aim of the Faculty to provide for the training of dental students and postgraduates to a high standard. This is intended to meet the objectives of the European Union with respect to dental education. The Faculty has made a successful transition from being a School of Stomatology within the Faculty of Medicine to becoming a modern, independent, Faculty of Odontology, following the European Guidelines, a Spanish law of 1986 and a curriculum approved by the University in 1994.

### **Objectives**

- the Faculty organises the training of dental students according to Spanish law and the requirements of the University Complutense statutes.
- the training in dentistry aims to give the necessary competences for the prevention, diagnosis and treatment of diseases of the mouth and surrounding structures.
- the Faculty organises postgraduate training of dentists in clinical specialities and to doctoral level.
- the Faculty aims to conduct research into oral and dental diseases, their treatment and prevention.
- the Faculty aims to provide dental health care to those patients required for the purposes of clinical teaching.

### **Governance and Administration**

The visitors felt that the strength of the departmental structure may at times confer a degree of rigidity on the system that could impair the ability of the Dean's team to introduce reform. Nevertheless, the Dean's support from central University committees was seen to be a strength of the system. The Faculty is fortunate to have an efficient administrative structure that adequately deals with the financial, non-academic and support systems both in the educational and clinical areas.

### **Undergraduate Course Structure**

The five-year course is divided into two cycles, the first taking two years and the second, three years. It was of some concern, however, that many students took somewhat longer to complete the course. Visitor's comments on the individual courses are attached to the documentation provided by the Faculty (Dental Curriculum Sections 5-16).

New undergraduates in this Faculty are required to attain a relatively high grade of approximately 7.4 in the general University access system (*selectividad*) and are thus well prepared to begin their University course with biomedical subjects. The order in which some of these subjects are taught in the curriculum should, in the view of the visitors, be reconsidered so as to make a more logical progression for the student from basic science through the pre- and para-clinical subjects to the clinical phase.

Students are able to choose elective subjects amounting to about 30% of their total curriculum which are innovative and popular, although sometimes demand for certain courses exceeds the resources available. There are also difficulties in timetabling these electives but the Faculty is encouraged to continue the possibility for the students to select parts of their course according to their own interests.

The Faculty may wish to consider the following observations of the visitors:

- The need for the Faculty to have a major input into the planning of the subjects taught by the Faculty of Medicine.
- There are problems in the grouping of subjects in the course on morphology, structure and function of the human body, particularly with respect to marking and student assessment. The visitors agree with the staff and the students that these courses need to be re-evaluated and feel that the lack of any course on embryology and practical classes in oral histology should be corrected.
- In order to allow an early assessment of psychomotor skills, a test of manual dexterity, such as tooth morphology and carving, may be better placed in the first year of the course.
- There is a rather low level of students' clinical experience with patients.
- There appears to be considerable variation in the amount of exposure of students to patients, particularly in prosthetics and oral surgery.

### **Facilities and Staffing**

The Faculty is housed in a spacious and elegant building. There are excellent lecture theatres and tutorial rooms for undergraduate and postgraduate students. Clinics are well equipped and spacious and careful consideration has

been given to modern infection control procedures. Good facilities are available for dental technology training and there is an interesting clinic-simulation laboratory which is used particularly for pre-clinical teaching in periodontology. Radiology equipment is of a high standard but the oral surgery department is still awaiting necessary refurbishment and commissioning of a new operating room. There is a very interesting dental museum.

Academic staff are full-time professors and part-time associate professors. The latter are, in many cases, interested in pursuing an academic career and impressed the visitors with their involvement in research in order to gain the necessary qualifications. There is a very favourable ratio of staff to students in the clinical subjects with one teacher per 6-8 students. The female proportion of academic staff is 30%. This is broken down as follows: full-time 16%, part-time 38%. Only one of the four dental academic departments is chaired by a women. There is an adequate number of dental nurses servicing the clinics considering that the students normally work in pairs. The dental students would benefit from working with dental hygienists during their clinical courses.

Library facilities are excellent and the visitors were particularly impressed with the *videothèque* and the extensive range of journal subscriptions. Students have access to only two computers in the library; however, several more computers are available in the informatics laboratory although the latter are available only at times when the students are occupied in classes or clinics.

There is considerable space available for research in the basement of the building that has not yet been fitted out but there is a well-equipped research laboratory, largely committed to periodontal microbiology, and mainly supported by outside grant funding.

### **Teaching Methods and Examinations**

Most of the pre-clinical teaching is in the form of traditional lectures augmented with practical classes. Lectures remain the usual form of teaching for the para-clinical and clinical phases of the course but tutorials and other teaching in small groups are also common in the later years of the course. An interesting experiment is taking place in periodontology where one group is receiving traditional teaching of the theoretical part of the subject while another group is receiving tuition in a problem-based-learning format. The results of this study will then be evaluated and the visitors expressed the wish that the results will be published. Clinical teaching is carried out with the students working in pairs and swapping over the roles of operator and assistant for the second patient in each clinic. In oral surgery legal restrictions clearly limit the possibilities for students to perform extractions. Hence, students are mainly occupied in assisting postgraduate students but do extract a small number of teeth themselves.

There are diverse methods of student assessment but no major final written clinical examination. Students expressed the concern that it was difficult to appeal against an examination result. However, new University regulations are now in place that establish an appeals mechanism. Students should be well informed about these processes and would benefit from a mentoring system whereby individual academic staff could guide students in relation to these and other aspects of their academic progress. Presently there is limited opportunity for students to participate in the evaluation of courses. A further point of concern to the students was that written examinations are not anonymous.



## Research

The visitors noted that there is no obligation for Faculty teachers to conduct research, although appointment to full professor grade requires demonstrated research ability and a doctorate degree. It was difficult to assess the quality of research being carried out by members of staff because most of the papers were published in Spanish language journals. The visitors were aware that the lack of any impact factor mechanism for non-English language journals was a serious drawback for researchers without a good command of English. The possibilities of using scientific translators to translate the best research coming out of the Faculty should be considered in order to raise the international research profile and increase the flow of research funds. Research was clearly an important matter for some of the part-time associate professors but the visitors felt that research activity was otherwise very varied.

## Future Developments

There is currently opportunity and intention to reform the curriculum. This will allow the Faculty to address imbalances between the contribution of the different basic science subjects. There is an opportunity to seek a greater integration not only between the basic sciences and the clinical parts of the course, but also between the various basic science subjects themselves and between the different disciplines of the clinical course. The visitors strongly endorse the Faculty's intention to expand the amount of clinical activity by the students and the possibility to shift the balance between pre-clinical training and clinical activity in favour of the latter. Apart from the educational benefit to students, this change will also result in a greater number of patient treatments delivered by the Faculty with commensurate increase in Faculty income. The visitors consider it essential that these proposed curricular changes take place. The visitors would encourage the further development of student-centred teaching already begun in the Faculty. They were also pleased to note the constructive moves towards formal agreements with outside organisations, e.g. the hospital sector, and geriatric homes, to allow student access to a wider patient mix.

## Strengths

- Integrated clinics for both adult and children's dentistry
- Wide range of elective courses
- Anaesthetics and reanimation course
- Clinical and pre-clinical facilities
- Dedicated full-time and part-time academic staff
- Favourable staff-student ratio
- Support of the University for the Faculty

## Weaknesses

- Relatively low level of research funding
- Poor level of integration of basic science with clinical subjects
- Restricted contact with general hospital
- Insufficient student contact with patients
- Lack of student support and poorly understood appeals process
- Insufficient student and graduate feedback on their training

The Faculty of Odontology of the University Complutense de Madrid is well equipped and staffed. It produces dental graduates with experience in most of the clinical competences laid down by the European Directives. The desire of the Faculty for continuing development is encouraging.

Madrid, 16<sup>th</sup> February, 2000

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Professor Robbie McConnell  
(Cork), Chairman

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Professor W Peter Holbrook  
(Reykjavik), Rapporteur

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Professor John Scott  
(Liverpool)

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Professor Jolan Banoczy  
(Budapest)

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Professor Cecilia Christersson  
(Malmo)