

1. BASIC INFORMATION

Course	ORTHODONTICS I
Degree program	DENTISTRY
School	FACULTY OF HEALTH SCIENCES
Year	THIRD YEAR
ECTS	6 ECTS
Credit type	OBLIGATORY
Language(s)	ENGLISH/ SPANISH
Delivery mode	CAMPUS-BASED
Semester	FIRST SEMESTER
Academic year	2020-2021
Coordinating professor	CAROLINA ANDRÉS CASTELLÓ/ RAFAEL FERNÁNDEZ SABATER

2. PRESENTATION

Contextualization of the contents within the module "Pathology and Dental Therapeutics". It is the first subject that initiates students in orthodontic therapy and in it the features of a normoclusion will be explained to correctly diagnose occlusal problems in a patient. A correct diagnosis is made not only with good knowledge of the dentition of a child patient, but also with the study of their growth and development and its evolution over time, studied by a number of cephalometric analysis that will be seen in detail in subject.

Contextualization of the powers of the topic within the module "Pathology and Dental Therapeutics". In this course a number of competencies of the degree in dentistry are developed: Understanding the basic biomedical sciences on which dentistry is based to ensure correct bucco-dental care (11), understand and recognize the structure and normal function of the oral cavity, to molecular, cellular, tissue and organ level, at different stages of life (12), understand and recognize sciences essential biomaterials for dental practice and immediate handling of possible allergies to them (13), obtain and develop a medical record that contains all relevant information (20), namely a complete oral examination, including appropriate radiographic and additional exploration testing and obtaining appropriate clinical references (21), and the capacity to develop an initial diagnosis and establish a reasoned diagnostic strategy, competent in the re knowledge of situations that require urgent dental care (22).

Module contextualization "Pathology and Dental Therapeutics" in the degree. As is reflected in the curriculum, this module is key in the formation of a future dentist for being the largest degree.

3. COMPETENCIES AND LEARNING OUTCOMES

General competences:

- GC1: Understand the essential elements of the dental profession, including ethical and legal responsibilities.
- GC3: Capacity to learn to identify the concerns and expectations of the patient and communicate effectively and clearly, both orally and in writing with patients, family members, the media and other professionals.
- GC9: Ability to understand the importance of keeping records and using patient information for later analysis, preserving the confidentiality of the data.
- GC10: Ability to recognize and identify the psychological and physical problems resulting from domestic violence to train students on prevention, early detection, care, and rehabilitation of victims of such violence
- GC12: Ability to understand and recognize the normal structure and function of the oral cavity at the molecular, cellular, tissue and organ in the different stages of life.
- GC13: Ability to understand and recognize the essential science of biomaterials for dental practice as well as the immediate management of possible allergies to them
- GC14: Knowledge of general disease processes, including include infection, inflammation, immune system disorders, degeneration, malignancy, metabolic and genetic disorders.
- GC15: Familiarity with general pathological features of diseases and disorders affecting organic systems specifically those having oral impact
- GC16: Ability to understand the fundamentals of action, indications and effectiveness of drugs and other therapeutic interventions, knowing their contraindications, interactions, systemic effects and interactions on other organs, based on the available scientific evidence.
- GC19: Knowledge of the scientific method and have critical capacity to assess the established knowledge and new information. Being able to formulate hypotheses, collect and critically evaluate information for problem solving, following the scientific method.
- GC20: Ability to obtain and develop a medical record that contains all the relevant information.
- GC22: Ability to develop an initial diagnosis and establish a reasoned diagnostic strategy, competent in the recognition of situations requiring urgent dental care.
- GC23: Ability to establish the diagnosis, prognosis and proper planning therapy in all clinical areas of dentistry, competent in the diagnosis, prognosis and development of the dental treatment

plan of the patient requiring special care, including medically compromised patients (as diabetes, hypertension, immunocompromised, anticoagulants, etc.) and patients with disabilities.

- GC25: Ability to understand and apply the basic treatment of oral and dental disease most common in patients of all ages. Therapeutic procedures should be based on the concept of minimally invasive and in a global and integrated approach of the dental treatment.

Basic competences:

- BC1: Students that have demonstrated knowledge and understanding in a field of study that starts of the basis of general secondary education, and is typically at a level that, although it is supported by advanced textbooks, includes some aspects involving knowledge of the forefront of their field of study.
- BC2: Students can apply their knowledge to their work or vocation in a professional manner and have competences typically demonstrated through devising and defending arguments and solving problems within their field of study.
- BC4: Students can communicate information, ideas, problems and solutions to an audience both skilled and unskilled.
- BC5: Students have developed the necessary learning skills to undertake further studies with a high degree of autonomy.

Transversal competences:

- TC1: Responsibility: The student is able to bear the consequences of the actions taken and accountable for their own actions.
- TC4: Communication skills: Students will be able to express concepts and ideas effectively, including the ability to communicate in writing with conciseness and clarity, as well as public speaking effectively.
- CT7: Teamwork: Students will be able to participate in an active way in achieving a common goal, listening, respecting and valuing the ideas and proposals of the other members of his team.
- CT8 Initiative: The student should be able to anticipate proactively proposing solutions or alternatives to the situations presented.
- CT9: Planning: The student is able to effectively determine their goals and priorities defining actions, deadlines, and optimal resources required to achieve these goals.

Specific competences:

- SC34: Perform basic treatments buco-dental pathology in patients of all ages. Therapeutic procedures should be based on the concept of minimally invasive and in a global and integrated approach of the buco-dental treatment.
- SC35: Diagnose, plan and implement, in general, a multidisciplinary treatment, sequential and

integrated with limited complexity in patients of all ages and conditions, and patients with special needs (diabetes, hypertension, cancer, treatment transplanted, immunosuppressed, anticoagulated, between others) or disabled. Specifically, the dentist must be competent in establishing a diagnosis, prognosis and a development of appropriate therapeutic planning, and particularly in orofacial pain, temporomandibular disorders, bruxism and other parafunctional habits; tooth and periapical disease; oral-dental trauma; periodontal disease and peri- implant tissues; maxillary bone pathology, oral soft tissues and adjacent glands; states of partial or total edentation and in the planning of its rehabilitative treatment by means of dental and muco-supported prostheses, or dental implants, malpositions and / or dental malocclusions and other anatomical alterations or functions of the face or stomatognathic system and its possible orthodontic corrections, orthopedic or surgical.

- SC36: take and interpret X-rays and other procedures based on image, relevant in dental practice.
- SC37: Carry out diagnostic models, articulate them and take inter-occlusal records
- SC38: To determine and identify the aesthetic requirements of the patient and the chances of achieving their concerns
- SC39: Identify patients requiring special care, recognizing its characteristics and peculiarities.
- SC40: Evaluate the motor and sensory function of the mouth and jaw.
- SC41: Perform limited invasive diagnostic techniques procedures in soft tissue (biopsy).
- SC42: Competent in prescribing drugs appropriate for knowing their contraindications, interactions, systemic effects and effects on other organs.
- SC43: Apply techniques of loco-regional anesthesia.
- SC44: Prepare and isolate the operative field.
- SC45: Identify, evaluate and respond to emergencies and medical emergencies that may arise during clinical practice and apply techniques cardiopulmonary resuscitation; manage acute infections including drug prescriptions and simple surgical aspects.
- SC46: Identify and address any dental emergency.
- SC47: Carry both medical and surgical treatment of common diseases of the oral soft tissues.
- SC48: Perform simple surgical procedures: extraction of temporary and permanent erupted teeth, or retained fractured roots and uncomplicated surgical removal of impacted teeth and simple procedures of pre-prosthetic surgery.
- SC49: Treating dentoalveolar trauma in temporary and permanent dentition
- SC50: Treat both pharmacological and surgically, inflammatory processes of the periodontal and / or peri- implant tissues with techniques including supragingival and subgingival periodontal instrumentation.
- SC51: Evaluate and treat patients with non-cariou cavities or other dental pathology and be able to use all materials designed to restore form, function and aesthetics of the tooth in patients of

all ages.

- SC52: Design, prepare teeth, prescribe, record, clinical testing and place and remove indirect restorations: inlays, veneers or laminates aesthetic fronts and individual crowns.
- SC53: Treat operatively destructive processes and dentoalveolar traumatic injuries.
- SC54: Perform endodontic treatments and implement procedures to preserve pulp vitality.
- SC55: Carry out conventional aesthetic procedures from a multidisciplinary perspective.
- SC56: Treat both partial and fully edentulous, including biological design (specific design features), tooth preparation, obtaining records, clinical trials and adaptation to patients with removable partial dentures and complete, simple bridges dento-supported and prosthetics simple implant, both removable and fixed, including their "placement" and "commissioning".
- SC57: Develop requirements for medical devices as "dentures" and "orthodontic and orthopedic appliances»
- SC58: Perform non-surgical treatment of Temporomandibular disorders and orofacial pain
- SC59: Perform bucodental child patient treatment and recognize their characteristics and peculiarities
- SC60: Identify and correct oral habits likely to cause or exacerbate malocclusion.
- SC61: Plan, determine specific design features of the appliance, records, prescription, clinical trials, placement and adjustment of fixed and removable space maintainers, interceptive orthodontic techniques and removable active elements for moving teeth or correcting crossbites.

Specific competencies of the subject:

- Identify and classify Orthodontic malocclusions.
- Knowing the pathogenesis of each malocclusion.
- Describe the basic tools that we have in orthodontics to treat malocclusions.
- Being able to develop a complete medical history.
- Know and perform the most common cephalometric analysis in orthodontics
- Establish priorities when requesting additional diagnostic tests.
- Knowing the basic mechanisms of growth of craniofacial structures: skullcap, base of skull, jaw nasomaxillary complex.
- Describe the basic sequence of human dentition and to diagnose pathological changes.
- See orthodontics not only as a field of aesthetic character but as one more contribution in oral health care.

Learning outcomes:

- LO1: Knowledge of the Classification and Etiology of malocclusion,
- LO2: Knowledge required for orthodontic diagnosis: Study cephalometric and facial analysis.
- LO3: Study horizontal, vertical and Class I, II and III syndromes
- LO4: Basics of Fixed and Removable Devices in Orthodontics.
- LO5: Development of general competencies for clinical activity in orthodontics.

The following table shows the relationship between the competencies developed during the course and the learning outcomes pursued:

Competencies	Learning outcomes
GC12,GC14,GC15,GC19,GC20,GC22,GC23,BC5,SC34,SC35,SC60	LO1
GC15,GC19,GC20,GC22,GC22,GC23,BC5,SC34,SC35,SC36,SC60	LO2
GC12,GC14,GC15,GC19,GC20,GC22,GC23,BC5,SC34,SC35,SC39,SC60	LO3
GC19,BC5,SC34,SC35,SC47,SC59,SC60,SC61	LO4
GC1,GC3,GC9,GC10,GC12,GC13,GC15,GC16,GC19,GC25,BC1,BC2,BC4,BC5,TC1,TC4,TC7,TC8,TC9,SC34,SC35,SC37,SC38,SC39,SC40,SC41,SC42,SC43,SC44,SC45,SC46,SC47,SC48,SC49,SC50,SC51,SC52,SC53,SC54,SC55,SC56,SC57,SC58,SC59,SC60	LO5

4. CONTENT

The SUBJECT is organized into three learning units (AU), which in turn are divided into lessons.

- **UNIT I: INTRODUCTION AND RECORDS**

Lesson 1 - Introduction to orthodontics.

Lesson 2 - Nature and morphology of normocclusion.

Lesson 3 - Concept and classification of malocclusions.

Lesson 4- Etiology of malocclusion.

Lesson 5 - Exploration in orthodontics: History and facial analysis.

Lesson 6 – Study cast analysis I

Lesson 7 – Study casta analysis II

Lesson 8 - Odontometric Analysis I.

Lesson 9 - Odontometric Analysis II.

Lesson 10 – Physiopathology of tooth eruption

Lesson 11- Development of primary teeth

Lesson 12- Mixed dentition

- **UNIT II: STUDY cephalometric**

Lesson 13- Introduction to Cephalometrics

Lesson 14 - Anatomy of lateral cephalometric

Lesson 15 - Cephalometric methods

Lesson 16- Using the Cephalometry

- **UNIT III: GROWTH CRANIOFACIAL**

Lesson 17. Craniofacial growth

Lesson 18- Growth and facial types variations

Lesson 19 - Types of craniofacial growth.

Lesson 20 – Growth factors

Lesson 21- Growth of the cranial vault, cranial base and Naso-maxillary complex.

Lesson 22 - Growth of the mandible.

Lesson 23 – Osseus Dysplasia

Content pre-clinical practices

- Permanent dentition case analysis
- Calculation of tooth size- arch length discrepancy
- Calculating Bolton analysis
- Mixed dentition cast analysis
- Calculating Moyers analysis
- Cephalometric tracing
- Cephalometric tracing. Steiner analysis
- Cephalometric tracing. Analysis of Ricketts

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Master class
- Case method
- Problem-based learning
- Simulation environment

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Type of training activity	Total hours
Theoretical classes	50h
Laboratory practices	36,6h
Practical exercises	23,3h
Case analysis	16,6h
Seminars	10h
Tutorials	13,3h
TOTAL	150 h

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Evaluable activity	Weight (%)
<i>Knowledge test</i>	40%
<i>Preclinical practices</i>	40%
<i>Case analysis</i>	10%
<i>Case-Problem</i>	10%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

To pass the course in the first exam period, you must

- Overcome each part of the subject independently with a rating equal to or greater than 5 out of 10 (weighted average).
- Attend 75% of the theoretical sessions and 90% of practical activities. If absences occur in theory, it is considered that the student has not reached the necessary skills to pass the subject and will fail in the ordinary call, having to go to the exam in the extraordinary call. If absences occur during practice, the student will be failed in the ordinary call and will be presented in the extraordinary call to retake the activities determined by the teacher.

Theory (40% of the final grade)

- A written test will be done that will consist of 40 multi-choice questions from the syllabus of the course and the course content done during practice. Each question has a grade of 0,25 points out of 10.
- Every three questions wrongly answered, a correct one will be subtracted. These 10 questions will have a weight of 40% of the total grade for the course and the student will need a score equal to or greater than 5 out of 10. If the student fails the test, the student must attend the extraordinary call.
- Attendance is mandatory to 75% of the theoretical lessons.. Every 3 delays greater than 15 minutes is considered as a lack of assistance.

Practical part (40% of the final grade)

- A continuous evaluation of pre-clinical practice will be held. The work will be grade in each of the practices during the semester. In addition, throughout the semester, they will be running tests assessment about the practices. The overall grade is obtained as average between the various grades obtained depending on the contents to be evaluated at all times.

- The pre-clinical practices carried out during the semester will have a weight of 20% of the total mark of the practices. This part is not recovered in extraordinary call, the average of the grade obtained will remain.
- The remaining 20% will be obtained from a test of cephalometric tracing, which will be held on the last practice of the subject. This test will be overcome with a score equal to or greater than 5 out of 10. If the student fails the test, the student must attend the extraordinary call.
- Attendance at practices is mandatory. It has to reach 90% of attendance to practices. If the student doesn't reach 90% of attendance during practices, the practice continuous assessment will be suspended and the student will not exceed the practical part of the course, having the failed subject in the ordinary call. Each 3 delays greater than 15 minutes is considered as a lack of assistance to practice.
- ***"Attendance to laboratory practices is MANDATORY. Not attending these practices implies to failure. It is necessary to have the laboratory practices approved independently to be able to make an average with the rest of the evaluable activities "***

Case analysis (10% of the final grade)

- A test of a clinical case with images will be carried out once all the theoretical topics about the subject are completed. Any of the theoretical content taught in the subject can be evaluated.
- The clinical case will be held together with the theoretical test, the same day.
- To pass the resolution of clinical cases, it is necessary to obtain an equal or greater rating of 5 out of 10.
- This part if not passed in the ordinary call, it will be recovered in the extraordinary call the same day of the theoretical tests.

Case / problem (10% of the final grade)

- A debate called "Point / Counter Point" in which groups will discuss issues of clinical character in orthodontics is performed.
- They will be provided with articles from scientific nature which will they will use to make a power point presentation where the content of the article is exposed.
- To pass this exercise, it is necessary to obtain an equal or greater rating of 5 out of 10.
- This part is not recovered in extraordinary call, the average will kept the mark obtained but attendance at these presentatio is mandatory regardless if the student presents or not that day.
- Non-attendance means a grade of 0 in this part.

Students that do not obtain at least a score of 5 out of 10 have failed the subject.

Each percentage described above in the different sections of the course will have to be qualified independently and the average will be obtained following the criteria described above.

In case of failing any of the parts that have to be overcome in the ordinary call (theoretical test, Cephalometry ...), all other grades will be respected and after passing the corresponding part, the average will be done.

To make the average the student must overcome all the parts separately.

Class attendance is mandatory and practices under Article 1.4 of the Rules of evaluation to a minimum of 75% of the theoretical classes and 90% of practices.

Other considerations:

The theory sessions will be of 2h. Two sessions will be held weekly, theoretical and practical. The student will be asked to work 4 hours / week outside the classroom. In each session the study activities and works in group or individual are specified to the student to take place outside the classroom.

The materials that comprise the course are structured: LEARNING GUIDE, PRACTICE GUIDE, THEORY LESSONS, LABORATORY PRACTICE STATEMENTS, OTHER ACTIVITIES. Blackboard will be used to provide access to these materials and grouped by themes and practices.

Adjust times of the student dedication to the realization of each of the practices. To do so, ask the student to note down into memory the time used in performing the practices.

To prevent accidents during practice, it is mandatory that students strictly complied with the instructions given at the beginning of each session.

In the first practice they will be presented in detail inexcusable compliance standards in the laboratory.

The student must be very careful in using sharp instrumental like wax and plaster spatulas when preparing the orthodontic study models.

7.2. Second exam period

To pass the course in the second exam period, you must:

- Repeat each of the parts of matter which have been failed in the ordinary call.
- Those parts that has exceeded the mark of 5 out of 10 are saved.

- The tests will be with the same format as in the ordinary call.
- Continued clinical practices can not be recovered.
- Case / problem activities can not be recovered.
- The case analysis will be recovered the same day of the theoretical test resit
- Cephalometric exam can be recovered by re-examination on the date set by the faculty or the same day as the theoretical tests are performed.

To pass the subject, all parts must be approved separately with a grade from 5 to 10. Only then an average with the other parts can be done

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Knowledge theory test	January 2021
Case analysis	January 2021
Pre-clinical practice	September- December 2020
Cephalometric practical test	December 2020
Clinical case/Problem	December 2020

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAPHY

The recommended bibliography follows:

- BRAVO, L.A. (2007). **Manual de Ortodoncia**. Madrid: Síntesis.
- CANUT BRUSOLA, J.A. (2005). **Ortodoncia Clínica y Terapéutica**. Barcelona: Masson. 2ª edición.
- PROFFIT, W. (2018). **Contemporary Orthodontics**. Philadelphia, IL: Elsevier. 6th edition.

10. DIVERSITY MANAGEMENT UNIT

Students with specific learning support needs:

Curricular adaptations and adjustments for students with specific learning support needs, in order to guarantee equal opportunities, will be overseen by the Diversity Management Unit (UAD: Unidad de Atención a la Diversidad).

It is compulsory for this Unit to issue a curricular adaptation/adjustment report, and therefore students with specific learning support needs should contact the Unit at unidad.diversidad@universidadeuropea.es at the beginning of each semester.

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.