COURSE DATA

DATA SUBJECT

Code: 34720
Name: Orthodontics I
Cycle: Undergraduate Studies
ECTS Credits: 12
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1206 - Degree in Dentistry	Facultat de Medicina i Odontologia	4	Annual

SUBJECT-MATTER

Degree	Subject-matter	Character
1206 - Degree in Dentistry	Orthodontics	COMPULSORY

COORDINATION

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SUMMARY

The compulsory subject Orthodontics I, is the first part of Orthodontics matter belonging to Dental Pathology and Therapy Module. This subject has a total of 18 ECTS credits that are divided between Orthodontics I, which is offered in 4th course of the Degree having 12 ECTS credits and Orthodontics II, which is offered in 5th course of the Degree having 6 ECTS credits.

Relatively independent of the rest of the subjects of the module in its diagnosis methods and classification, clinical treatment procedures and part of the basic sciences on which it is based, Orthodontics I provides a diachronic view of the dentition and the possibilities of changing the provision and occlusion of teeth in different moments of life of the patient.

It has a special relationship and some matches, without excluding relations with Basic Science, with Pediatrics Dentistry and Prosthetics, which orthodontics can add options or improve treatment. It also shares responsibility in some types of treatment with Oral Surgery and Orthognathic Surgey and Periodontics, especially regarding periodontium biology, and finally with Biomaterials Science and Epidemiology.

In the subject of Orthodontic I, basic knowledge and skills in morphological, etiopatogenicand descriptive diagnosis of occlusion and malocclusion are covered. The development of dentition, craniofacial growth, biomechanics and use of treatment materials, biology of tooth movement, general characteristics of treatment, appliances and risks associated with orthodontic therapy is studied. Specific models of clinical treatment of malocclusions are developed in the subject of Orthodontics II.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

1206 - Degree in Dentistry

Obligation to have previously passed the subject(s)	34696 - Human anatomy 34697 - Biology 34698 - Human physiology 34699 - Biochemistry 34702 - Psychology and communication

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

1206 - Degree in Dentistry

Conocer y aplicar el tratamiento básico de la patología bucodentaria más habitual en pacientes de todas las edades. Los procedimientos terapéuticos deberán basarse en el concepto de invasión mínima y en un enfoque global e integrado del tratamiento bucodental.

Determinar e identificar los requisitos estéticos del paciente y de las posibilidades de satisfacer sus inquietudes.

Elaborar las prescripciones de los productos sanitarios a medida «prótesis dentales» y «aparatos de ortodoncia y ortopedia dento-facial».

Identificar y corregir hábitos bucales susceptibles de causar o exacerbar maloclusiones.

Planificar, determinar las características especificas de diseño, registros, prescripción, pruebas clínicas, colocación y ajuste clínico para puesta en servicio de mantenedores de espacio fijos y removibles y técnicas de ortodoncia interceptiva así como elementos activosextraíbles destinados a desplazar dientes o corregir mordidas cruzadas.

Realizar modelos diagnósticos, montarlos y tomar registros inter-oclusales.

Saber realizar un examen bucal completo, incluyendo las oportunas pruebas radiográficas y de exploración complementarias, así como la obtención de adecuadas referencias clínicas

Tomar e interpretar radiografías y otros procedimientos basados en la imagen, relevantes en la práctica odontológica.

DESCRIPTION OF CONTENTS

1. Orthodontics: Concept and Objectives.

2. Historical Evolution of Orthodontics.

3. Nature and Morphology of Normal Occlusion.

4. Classification and Characterization of Malocclusion.

5. Etiology and Genetics of Malocclusion.

6. Clinical History and Orthodontic Examination.

7. Analysis of Study Models 1.

8. Odontometric Analysis Part 1. Tooth Size and Intra-Arch Relationships.

9. Odontometric Analysis Part 2. Inter-Arch Relationships.

10. Analysis of Study Models 2.

11. Facial Morphological Analysis 1.

12. Facial Morphological Analysis 2.

13. Pathophysiology of Peridental Soft Tissues.

ERUPTION

14. Dentition Formation. General Concepts.

15. Pathophysiology of Eruption and Mechanisms of Tooth Eruption.

16. The Mixed Dentition. First Period of Tooth Replacement.

17. The Mixed Dentition. Second Period of Replacement.

18. Eruption Anomalies 1.

19. Eruption Anomalies 2.

20. Maturation and Aging of the Dentition.

CEPHALOMETRY

21. Introduction to Cephalometrics. History and Relationships of Cephalometrics

22. Cephalometric Methods. Basic Concepts.

23. Lateral Cephalometric Anatomy.

24. Cephalometric Methods. Norma Lateralis.

25. Cephalometric Methods. Norma Lateralis.

26. Cephalometric Superposition. General Methods.

27. Other types of cephalometric and diagnostic imaging radiographs.

TOOTH MOVEMENT AND BIOMECHANICS

28. Tooth movement.

29. Factors of variability in tooth movement.

30. Biomechanics 1. Basic concepts. Forces and vectors.

31. Biomechanics 2. Static equilibrium. Active elements.

32. Biomechanics 3. Passive elements.

33. Biomechanics 4. Anchorage.

TREATMENT

34. Treatment plan. General considerations.

35. Functional disorders.

36. Treatment of Class I.

37. Treatment of transverse malocclusions.

38. Treatment of overbite.

39. Treatment of open bite.

40. Treatment of sagittal malocclusions. Class II, division 1.

41. Treatment of sagittal malocclusions. Class II, division 2.

42. Therapeutic extraction.

43. TMJ disorders in children. Pediatric TMJ pathology.

44. Treatment of sagittal malocclusions. Class III.

45. Orthodontic materials.

46. Removable plates.

47. Fixed appliances 1.

48. Fixed appliances 2.

49. Diagnostic summary. Steiner Box. Problem List. VTO.

50. New Techniques in Orthodontics. Part I: Orthodontics with Clear Aligners. Digital Fabrication of Orthodontic Appliances.

51. New Techniques in Orthodontics. Part II: Intraoral Scanners. CBCT. 3D Printing.

52. Hygiene and Prophylaxis in Orthodontics.

GROWTH

53. Growth. Overview.

54. Types of Craniofacial Growth.

55. Factors Determining Growth.

56. Growth of the Nasal-Maxillary Complex.

57. Growth of the Mandible.

58. Integration of Dentofacial Growth and Etiology of Bone Dysplasias.

59. Patients with Cleft Lip and Palate and Other Common Craniofacial Malformations.

60. Orthopedic Appliances.

61. Classification of Dentofacial Deformities.

62. Mandibular Growth Disorders.

63. Introduction to Orthognathic Surgery.

64. Dynamic synthesis of craniofacial anatomy and growth.

65. Microscrew placement techniques and biomechanics. Visual guide.

PRACTICES

PRACTICE 1. Wire bending.

PRACTICE 2. Ideal arches.

PRACTICE 3. Adams¿s hook.

PRACTICE 4. Vestibular arch.

PRACTICE 5. Analysis of cast models.

PRACTICE 6. Analysis of models in mixed dentition.

PRACTICE 7. Analysis of models in permanent dentition.

PRACTICE 8. Facial analysis.

PRACTICE 9 AND 10. Predetermination assembly (set up).

PRACTICE 11. Hawley's plate.

PRACTICE 12. Cephalometric anatomy.

PRACTICE 13. Steiner's cephalometric analysis.

PRACTICE 14. Ricketts cephalometric analysis.

PRACTICE 15. Diagnosis of a complete clinical case

PRACTICE 16. Diagnosis of a complete clinical case

PRACTICE 17. Diagnosis of a complete clinical case.

PRACTICE 18. Placement of metal brackets.

PRACTICE 19. Indices for determining the need for treatment: DAI and IOTN.

PRACTICE 20. Panoramic X-rays.

SEMINARS

1. Eruptive Disorders Seminar

2. Class I with DOD Seminar

3. Transverse Malocclusions Seminar

4. Vertical Malocclusions: Overbite Seminar

5. Vertical Malocclusions: Open Bite Seminar

6. Orthopedic Treatment of Class 3 Malocclusions Seminar

7. Orthopedic Treatment of Class 2 Malocclusions Seminar

8. TMJ Treatment Seminar: Splints

9. Orthognathic Surgery Treatment Seminar

10. Fixed Appliances Seminar: TIP-EDGE

11. Fixed Appliances Seminar: Straight Arch

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	66,00
Laboratory	34,00
Classroom practices	80,00
Total hours	**180,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	20,00
Independent study and work	70,00
Preparation of lessons	0,00
Preparation for assessment activities	20,00
Resolution of case studies	10,00
Total hours	**120,00**

TEACHING METHODOLOGY

1. THEORETICAL CLASSES: 3 hours per week throughout the course. The class is anoral exposure by the teacher of basic and new concepts.It will be done through active participation of students to facilitate their knowledge acquisition.

2. PRACTICAL CLASSES: 3 hours per week throughout the course. Groups will be of 40 students Practices arepreferably a training activity aimed to the practical application of theoretical knowledgeand training in some necessary orthodontics skills.The student will have a practical guide (teacher)who will facilitate the work and monitor the content of thepractices clearly and simply.

3. LABORATORY CLASSES: 2 hours per week during the second semester.Groups will be of 16 students who will diagnose cases with complete records and draw up various treatment plans that will be presented to their peers and discussed collectively in class. This type of exerciseis also made in the subject of Orthodontics II. Moreover, the possibilities and limitations of treatment procedures will be discussed in the study of the clinical cases. It may also carry out a monograph.

We intend to have a program with some scope for adaptation to the evolution of each concrete course.

- The gender perspective, respect for diversity and the sustainable development goals (SDGs) will be incorporated into teaching, whenever possible.

EVALUATION

Written midterm exam with multiple-choice questions held in January. A subject will be eliminated if a score equal to or greater than 70% of the total questions is taken.

A written final exam with multiple-choice questions will be held in the first and second sittings.

The final grade will be the average of the theoretical exam scores (60%), the grade obtained for participating in seminars (10%), and the grade obtained from the evaluation of skills and achievement in practical and laboratory sessions (30%), provided that all sections are passed with a minimum grade of 5.

Attendance at practical activities (laboratory practices and seminars) is mandatory. Students are considered to meet this requirement if they have attended at least 80% of these activities and have adequately justified their inability to attend the remaining sessions due to a force majeure event. An essential requirement for passing the course is that the student successfully complete all practical exercises and seminars (referring to both attendance and an average of 5 or higher in both practical exercises and seminars).

Students are reminded of the importance of completing the evaluation surveys of all faculty members for

this course.

REFERENCES

Básicas

1. Canut Brusola J.A. Ortodoncia clínica y terapéutica. 2ª Ed. Barcelona: Masson; 2000.

2. Bravo L.A. Manual de Ortodoncia. Madrid: Síntesis; 2007.

3. Bravo L.A. Teoría y Práctica de la Ortodoncia. Valencia: Lisermed; 2023

Complementarias

4. W. R. Proffit, Henry W. Fields, David M. Sarver. Ortodoncia Contemporánea. 6ª Ed. St. Louis:

Elsevier Mosby. 2019.

5. Ravindra Nanda. Biomecánica en ortodoncia clínica. 1º Ed. Madrid: Médica Panamericana; 1998.

6. RECURSOS e-Salut:

ClinicalKey Student Medicina, Odontologia y Enfermería

[https://uv-es.libguides.com/RecursosSalut]

Acces Medicina

[https://uv-es.libguides.com/Access_Medicina]

Médica Panamericana

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