



DISCIPLINE SHEET

1. Study programme

1.1.	"CAROL DAVILA" UNIVERSITY OF MEDICINE AND PHARMACY BUCHAREST				
1.2.	FACULTY OF DENTISTRY				
1.3.	DEPARTMENT 3rd				
1.4.	DISCIPLINE Embryology and Microbiology				
1.5.	STUDY DOMAIN: Health, sectoral regulated within the European Union				
1.6.	STUDY LEVEL: I (Bachelor's degree) and II (Master's degree)				
1.7.	STUDY PROGRAMME: DENTAL MEDICINE IN ENGLISH				

2. Discipline

2.1.	Discipline name according to the study curriculum: EMBRYOLOGICAL DEVELOPMENT OF THE DENTO-MAXILLARY APPARATUS IN RELATION TO POSTNATAL DYNAMICS				
2.2.	Discipline code: MD02OP20EN				
2.3.	Discipline type (FD/SD/CD): -				
2.4.	Discipline optionality (COD/ED/FAD): ED				
2.5.	Lectures tenure: Prof. dr. Andreea Didilescu, Senior Lecturer dr. Anca Coricovac, Senior Lecturer dr. Claudiu Călin, Senior Lecturer dr. Mihai Andrei				
2.6.	Practical classes / seminar tenure: Senior Lecturer dr. Anca Coricovac, Senior Lecturer dr. Claudiu Călin, Senior Lecturer dr. Mihai Andrei, Assistant Prof. dr. Raluca-Paula Vacaru				
2.7. Year of study	II	2.8. Semester	IV	2.9. Evaluation (E/C/V)	C

3. Estimated total time (hours/ semester of teaching and training activity /individual study)

I. University training						
3.1. Number of hours per week	2	from which:	3.2. lecture	1	3.3. practical class/ seminar	1
3.4. Total hours in the study curriculum	28	from which:	3.5. lecture	14	3.6. practical class/ seminar	14
II. Preparation/ individual study						
Time distribution						hours
Study of lecture materials, textbooks, books, study of the minimum recommended bibliography						20
Additional documentation activity in the library, on online platforms						4
Specific preparation activities for projects, practical classes, preparation of assignments, reports						4
Preparation for presentations or evaluations, preparation for the final examination						4
Tutoring activity						-
Other activities						-
3.7. Total hours of individual study						32
3.8. Total hours per semester (3.4.+3.7.)						60

4. Prerequisites (where appropriate)

4.1. curriculum	Embryology – 1st year of study
4.2. proficiencies	-

5. Conditions (where appropriate)

5.1. for lecture activity	Lecture hall; Video projector, laptop, Powerpoint/ Keynote software, laser pointer; Internet access (Moodle platform).
5.2. for practical class/ seminar activity	Laboratory; Video projector, laptop, Powerpoint/ Keynote software, laser pointer; Internet access (Moodle platform).

6. Learning outcomes*

Knowledge	Skills	Responsibility and autonomy
<p>Students should demonstrate an understanding of:</p> <p>Embryology</p> <ul style="list-style-type: none"> - the formation and development of the oral and maxillofacial complex from neural crest cells; - the chronology of tooth development from initiation to eruption; - the molecular signaling pathways that control odontogenesis and craniofacial morphogenesis; - critical periods of development and their clinical significance. <p>Anatomical structure and function:</p> <ul style="list-style-type: none"> - normal anatomy of the developing dentition and supporting structures; - growth patterns of the maxilla and mandible; - age-related changes in dental and skeletal morphology. <p>Common developmental abnormalities affecting the teeth and jaws:</p>	<p>Students should be able to:</p> <ul style="list-style-type: none"> - perform a complete examination of the developing dentition. - interpret radiographic findings related to tooth development and eruption; - recognize early signs of developmental disorders; - correlate clinical findings with underlying biological processes. 	<p>Ethics:</p> <ul style="list-style-type: none"> - commitment to continuing education in the field of developmental biology; - collaboration with interdisciplinary team members, when appropriate. <p>Professional development:</p> <ul style="list-style-type: none"> - advanced knowledge in areas of interest or special need; - critical evaluation of new research in the field of dento-maxillary development.

<ul style="list-style-type: none"> - environmental and genetic factors that influence normal development; - recognition of syndromic conditions affecting craniofacial development. 		
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7. Discipline objectives (correlated with learning outcomes)

7.1. General objective	<ul style="list-style-type: none"> - Acquisition of advanced knowledge related to the embryological development of the dento-maxillary complex, in relation to the factors that can determine anatomical, structural and functional modifications, with echoes in the postnatal dynamics.
7.2. Specific objectives	<ul style="list-style-type: none"> - Knowledge of the stages and peculiarities of the embryological development of the dento-maxillary complex. - Understanding the factors involved in the development of the dento-maxillary complex. - Understanding the postnatal dynamics of the dento-maxillary complex.

8. Contents

8.1. Lecture	Teaching methods	Observations
1. Advanced knowledge about the embryological development of the cranium and the dento-maxillary complex - evolutionary aspects	Interactive presentations of the material according to the analytical program, using multimedia means, power point presentations	2 hours
2. The factors involved in the pre- and postnatal development of the dento-maxillary complex - mechanisms of action and effects		2 hours
3. The main anomalies of craniofacial development - characteristics, imaging aspects		2 hours
4. Odontogenesis in relation to the dynamics of craniofacial development		2 hours
5. Tooth eruption and the factors involved in the occurrence of disturbances in the tooth eruption process		2 hours
6. The main disturbances of tooth development in relation to the factors involved. Etiology. Particular aspects		2 hours
7. Advanced knowledge about the development of the temporomandibular joint in relation to the dynamics of craniofacial development - evolutionary aspects		2 hours

Recent bibliography:

1. Carlson BM (2013). Human embryology and developmental biology. Saunders; 5th edition.
2. Moore KL, Persaud TVN, Torchia MG (2015). The Developing Human. Clinically Oriented Embryology. Tenth edition. Saunders Elsevier (elective).
3. Sadler TW, Langman J (2011). Langman's Medical Embryology. Philadelphia, Pa.; London: Lippincott Williams & Wilkins; 12th edition (elective).
4. 3D Atlas of Human Embryology (2016) <https://www.3dembryoatlas.com> (elective).

Periodical publications (optional)

5. Journal of Dental Research
6. Romanian Journal of Morphology and Embryology

8.2. Practical classes/ seminar	Teaching methods	Observations
1. Advanced knowledge about the embryological development of the cranium and the dento-maxillary complex – examples of medical imaging	PowerPoint presentation; drawings, explanations; microscopic examination of histological sections, embryos and human fetuses; imaging study.	2 hours
2. Teratogenic factors affecting the development of the dento-maxillary complex – applied notions and clinical cases.		2 hours
3. Functional factors involved in the development of the dento-maxillary complex - characteristics, mechanisms of action, examples of medical imaging		2 hours
4. Biology of the teeth and of the pulp-dentin complex – applied notions and imaging examples		2 hours
5. Biology of the supporting complex of the teeth – applied notions and imaging examples		2 hours
6. Postnatal dynamics of teeth – applied notions and imaging examples		2 hours
7. Postnatal dynamics of the temporomandibular joint - examples of medical imaging		2 hours

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9. Assessment

Activity type	9.1. Evaluation criteria	9.2. Evaluation methods	9.3. Percentage of final grade
9.4. Lecture	<p>A. Knowledge for mark 5: elementary notions of embryological development of the dento-maxillary complex in relation to postnatal dynamics.</p> <p>B. Additional knowledge for mark 10: in-depth notions of embryological development of the dento-maxillary complex in relation to postnatal dynamics; possibility of interrelationship.</p>	<p>Colloquium: 20 questions (single choice).</p> <p>Attendance and active participation in the course will be taken into account.</p>	70%
9.5. Practical classes/ seminar	A. Knowledge for mark 5: elementary notions of embryological development of the dento-maxillary	Practical assessment: the presentation of a	30%

	<p>complex in relation to postnatal dynamics; correct interpretation of microscopic images.</p> <p>B. Additional knowledge for mark 10: in-depth notions of embryological development of the dento-maxillary complex in relation to postnatal dynamics; possibility of interrelation; correct interpretation of microscopic images.</p>	<p>topic from the scientific literature that reflects the notions learned in the lecture and the practical sessions.</p> <p>Attendance and active participation in the seminar sessions will be taken into account.</p>	
9.5.1. Individual project (if any)	-	-	-
Minimum performance standard			
<ul style="list-style-type: none"> Knowledge of the basic concepts of embryological development of the dento-maxillary complex in relation to the teratogenic and functional factors involved in the postnatal dynamics and in the appearance of the main anomalies. 			