

Course name

Orofacial genetics

Institute/department where the course is taught

Department of Pediatric and Preventive Dentistry

Address of the headquarters of the institute/department

School of Dental Medicine, University of Zagreb, Gundulićeva 5, HR-10000 Zagreb

Course status

Elective course

Year of study in which the course is taught

6th year

Semester in which the courses is taken

Winter semester

Number of ECTS

1 ECTS (1.5 ECTS for students who enrolled in the academic year 2020/2021 or earlier)

Case holder

Assoc. Prof. Tomislav Škrinjaric , tskrinjaric@sfzg.hr

Other teachers in the subject who participate in teaching

-

Number of teaching hours

	Winter semester	Summer semester	Total (both semesters)
Lectures	15	-	15
Seminars	-	-	-
Exercises	-	-	-
Total	15	-	15

1 hour = 45 minutes

Type of exercises in the course

The subject has no exercises.

Objectives and purpose of the course

Orofacial genetics is a clinical dental discipline that deals with the study of normal and pathological variations of dental and orofacial structures in humans. Heredity plays a key role in the normal development and occurrence of abnormalities of the craniofacial region. In recent times, genomics has been developed as a branch of genetics that deals with the sequencing and analysis of an organism's genome. At the same time, he uses bioinformatics for the purpose of analyzing and connecting the function with the structure of the genome. Genome-wide sequencing (GWS) is the most complete test for detecting pathogenic genetic variants. Research using modern techniques of genomics ,

bioinformatics and statistics has led to significant progress in identifying the causes of numerous syndromes and abnormalities in the development of orofacial structures such as cleft lip and palate. For this reason, the orofacial genetics course should provide dental students with basic knowledge of the application of basic genetic principles in clinical practice and understanding of developmental disorders and genetic diseases of orofacial structures.

The purpose of teaching orofacial genetics is to provide knowledge about the most common genetic abnormalities of teeth and orofacial structures, about methods of evaluating people with genetic disorders, about genetic disorders and the possibilities for their treatment and preventive action. Craniofacial abnormalities often require an interdisciplinary approach, so the doctor of dental medicine will participate in the team for diagnosing, treating and rehabilitating such people. Therefore, the doctor of dental medicine must have appropriate knowledge of orofacial genetics, that is, to know well the principles and characteristics of inheritance of genetic disorders, their clinical picture and how to take a family history. Doctors of dental medicine need to master the basic knowledge of genetics and genomics in order to be able to recognize the genetic basis of diseases and developmental disorders of orofacial structures and assess the justification for conducting various genetic tests in clinical practice.

Course enrollment requirements

There are no requirements for enrolling in the course for students in the 6th year of the integrated undergraduate and graduate study program in Dental Medicine. The course is elective and students enroll in it at their own discretion.

Learning outcomes at the level of the integrated undergraduate and graduate study program in Dental Medicine to which the course contributes:

- ☐ Knowledge, skills and competences related to professionalism, ethics and law
- ☐ Knowledge, skills and competences related to communication and social skills
- ☒ Knowledge, skills and competences related to basic knowledge and the ability to collect information from the literature
- ☒ Knowledge, skills and competences related to the collection of clinical information
- ☒ Knowledge, skills and competences related to diagnosis and therapy planning
- ☒ Knowledge, skills and competences related to therapy, establishment and maintenance of oral health
- ☐ Knowledge, skills and competences related to preventive measures and health promotion

Expected learning outcomes

Knowledge

1. Describe the role of genetic factors in the development of various developmental disorders of teeth and orofacial structures.
2. Describe the method of examination and diagnosis of genetic disorders of teeth and craniofacials .
3. Describe the possibilities of diagnosing common syndromes with main signs on the teeth and orofacial structures.
4. Describe the role of a multidisciplinary team in diagnosing and treating individuals with orofacial and systemic genetic disorders

Skills

5. Identify orofacial abnormalities associated with systemic disorders.
6. To propose an appropriate therapeutic approach to the treatment of genetically determined abnormalities of teeth and oral structures.
7. To propose an adequate program of measures for the prevention of oral health in people with genetic disorders of orofacial structures.

Course content**Lectures**

	Lecture topics in the winter semester	Number of teaching hours
1.	Orofacial genetics: task and significance for dental medicine	1
2.	Methods in medical genetics	1
3.	Genetics and genomics craniofacial disorders	1
4.	Inheritance patterns and history of genetic disorders	1
5.	Dysmorphia craniofacial structures	1
6.	Examination and evaluation of the craniofacial region	1
7.	Genetic dental anomalies	1
8.	Genetics of common dental diseases (caries, malocclusions, periodontal diseases)	1
9.	Genetic defects of enamel and dentin	1
10.	Ectodermal dysplasias and dysplastic syndromes	1
11.	Genetic disorders of periodontal structures	1
12.	Genetics of cleft lip and palate	1
13.	Chromosomal syndromes in the craniofacial region	1
14.	Neurocutaneous syndromes and orofacial structures	1
15.	Phenotypic -genotypic correlations in orofacial disorders	1

1 hour = 45 minutes

Student obligations

Students are required to attend classes and complete assigned tasks.

Monitoring student work

Regularity of students' attendance at classes is monitored.

How to take the exam

Written and oral exam

Exam date(s)

	Extraordinary exam deadlines			Regular exam period WINTER	Extraordinary exam deadlines		Regular exam period SUMMER		Regular exam period FALL	
	November	December	January	February	April	May	June	July	August	September
Date(s)			27.	3rd, 10th, 17th			9th, 16th, 30th	7.	25.	1., 8.

--	--	--	--	--	--	--	--	--	--	--

Required reading

- Škrinjarić I: Orofacial genetics. Zagreb: Školska knjiga, 2006.
- Gorlin RJ, Cohen MM Jr , Hennekam RCM: Syndromes of the head and neck . Oxford: Oxford University Press, 2001.

Additional literature

-