



Physiology of the Masticatory System

1. IMPRINT

Academic Year	2026/2027
Department	Faculty of Medicine and Stomatology
Field of study	Medicine and Dentistry
Main scientific discipline	Medical science
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Extramural study (paid)
Type of module / course	Obligatory
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	Department of Dental Propaedeutics and Prophylaxis, 59 Nowogrodzka Str., 02-006, Warsaw, phone: 22 6256602 e-mail: zpips@wum.edu.pl Department of Periodontology, 6 Binieckiego Str., 02-097 Warszawa; phone: 22 1166431, e-mail: periodontologia@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	Leopold Wagner DDS, PhD Bartłomiej Górski DDS, PhD
Course coordinator	Renata Lenkiewicz DDS; rlenkiewicz@wum.edu.pl; phone: 22 6256602
Person responsible for syllabus	Renata Lenkiewicz DDS; rlenkiewicz@wum.edu.pl; phone: 22 6256602
Teachers	Renata Lenkiewicz DDS; rlenkiewicz@wum.edu.pl Jan Kowalski DDS, PhD; jkowalski@wum.edu.pl

2. BASIC INFORMATION

Year and semester of studies	II year, III and IV semester	Number of ECTS credits	2
FORMS OF CLASSES		Number of hours	ECTS credits calculation
Contacting hours with academic teacher			

Lecture (L)	6	0,24
Seminar (S)	10	0,4
e-learning (e-L)	-	-
Practical classes (PC)	14	0,56
Work placement (WP)	-	-
Professional Practice (PP)	-	-
Unassisted student's work		
Preparation for classes and completions	20	0,8

3. COURSE OBJECTIVES	
O1	Acquiring knowledge in the field of function, mechanics, interactions and mutual relationships of the masticatory system structures, as well as its integration with the rest of the body.
O2	Acquiring knowledge in the field of anatomy and physiology of oral mucosa.
O3	Acquiring knowledge in variabilities in individual characteristics of the masticatory system and their relationship with external and internal environment.
O4	Acquiring ability to evaluate the presence of physiological norm/aberrations during clinical examination.
O5	Acquiring ability to interpret physical phenomena within masticatory system.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING	
Code and number of effect of learning in accordance with standards of learning	Effects in the field of morphological, preclinical and clinical science as well as the scientific foundations of medicine.
Knowledge – Graduate* knows and understands:	
A.W1.	the human body structures: cells, tissues, organs and systems with particular emphasis on the stomatognathic system
A.W3.	the structure of the human body in a topographic and functional approach, with particular emphasis on the head and neck
B.W6.	the role and importance of body fluids, including saliva

B.W17.	human vital functions
C.W.13.	concepts of homeostasis, adaptation, resistance, immunity, susceptibility, compensatory mechanisms, feedback control and "vicious circle" mechanism
C.W30.	biomechanics of masticatory organ
E.W5.	basic methods of medical examination and the role of additional tests in the diagnosis, monitoring, prognosis and prevention of organ disorders with particular emphasis on the effects on oral tissues
F.W1.	phases of dental development, occlusal norms and deviations at different stages of individual life

Skills– Graduate* is able to:

B.U1.	interpret physical phenomena occurring in the masticatory organ
C.U4.	explain the etiopathogenesis, present the macroscopic and microscopic clinical stage and the evolution of pathological changes, and predict their consequences
F.U6.	perform a dental physical examination of the patient

5. ADDITIONAL EFFECTS OF LEARNING

Number of effect of learning	Effects of learning in time
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Knowledge – Graduate knows and understands:

W1	-
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Skills– Graduate is able to:

U1	-
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Social Competencies – Graduate is ready for:

K1	-
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6. CLASSES

Form of class	Class contents	Effects of Learning
L1 - lecture 1-2 (e-learning, real time)	Anatomy and physiology of the oral mucous membrane: oral epithelium; types of oral mucosa; oral, sulcular and junctional epithelium; defensive role of the oral mucous membrane.	A.W1.
S1 - seminar 1-2	Anatomy and physiology of the periodontium: tissues included in the periodontium; functions of the pointed tissues; Held's theory.	A.W1.
PC1 - practical class 1-2	Identification of the anatomical structures in oral mouth; repetition of the anatomy of neck and mouth; application of the acquired knowledge in practice.	A.W1.
L2 - lecture 3-4	Esthetic analysis in dentistry: significance and methods of esthetic analysis in diagnosis and treatment planning, face analysis, dento-labial analysis, phonetic analysis, teeth morphology, colour and position	A.W1., A.W3.

	analysis, gum analysis.	
L3- lecture 5-6	Basic functions of masticatory organ: chewing, speech, swallowing	B.W17.
S2- seminar 3	Bone physiology, specific aspects of masticatory organ	A.W1., A.W3. E.W5., C.W13.
S3- seminar 4-5	Movement within masticatory organ: muscle topography and physiology, function of masticatory muscles as single units and in coordinated jaw movements, muscle examination in theory	A.W1., A.W3., B.W.17., E.W5.
S4- seminar 6-7	Physiology and functions of dental tissues: enamel, dentin, pulp and periodontium. Examination of dental tissues. Function of salivary glands, role of saliva.	A.W1., B.W6., E.W5.
S5- seminar 8	Temporomandibular joints biomechanics: relations of TMJ elements during mandibular movements. Theory of clinical examination of TMJs	A.W3., C.W30., E.W5.
S6- seminar 9-10	Occlusion: static and dynamic teeth relations, goals for functional optimal occlusion, significance of vertical dimension of occlusion, principles of mutual protection of articulation, necessary conditions of occlusal stability, the envelope of function.	A.W3., B.W17., C.W30., E.W5., F.W1.
PC2- practical class 3-5	Masticatory muscle examination: direct and indirect methods of muscle evaluation.	B.U1., F.U6.
PC3- practical class 6	Dental tissues examination: pulp vitality thermal tests, periodontal response to percussion, teeth mobility - discussion on examination results, evaluation of hard dental tissues.	B.U1., F.U6.
PC4- practical class 7-8	Clinical evaluation of TMJs: palpation and auscultation, observation and evaluation of mandibular movements, determining the position of mandible in centric relation, verification of first occlusal contact in arc of closure	B.U1., C.U4., F.U6.
PC5- practical class 9-10	Occlusal analysis: - determining rest position of mandible, freeway space evaluation - mandible position determining the difference between centric relation and centric occlusion positions - examination of centric occlusion according to one phase method and Bausch Method -examination of eccentric occlusion	B.U1., C.U4., F.U6.
PC6- practical class 11-12	Clinical examination and cumulative analysis of the records. Clinical status assessment according to physiological norms.	B.U1., C.U4. F.U6.
PC17- practical class 13-14	Aesthetic analysis in dentistry according to M. Fradeani protocol.	B.U1., F.U6.

7. LITERATURE

Obligatory

1. Wheeler's dental anatomy, physiology and occlusion. Nelson S.J., Ash M.M. Saunders/ Elsevier 2020
2. Periodontology. The essentials. Mueller HP., Thieme Verlag 2015
3. Management of Temporomandibular Disorders and Occlusion. Okeson J.P. Elsevier/Mosby 2019
4. Esthetic rehabilitation in Fixed Prosthodontics vol.1: Esthetic Analysis. Fradeani M. Quintessence Publishing 2004

Supplementary

1. The Masticatory Organ. Slavicek R. Gamma Med. GmbH 2006
2. Sturdevant's Art and Science of Operative Dentistry - Edition 8. Ritter A.V., Boushell L.W., Walter R. Elsevier 2025

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
A.W1., A.W3., B.W6., B.W17., C.W13., C.W30., E.W5., F.W1.,	MCQ test – 50 questions	Obtaining at least 55% of the test points
B.U1., C.U4., F.U6.	Observation and assessment of practical skills	Completion of each task.

9. ADDITIONAL INFORMATION

Presence on all lectures, seminars, practical classes, theoretical preparation and active participation in seminars and practical classes, completion of all midterm tests is obligatory to be admitted to final test.

The single absence is excused (one in the whole course in two departments), being late more than 15 min. is treated as an absence.

In order to justify absences from classes and tests, student is obliged to deliver by e-mail or in written the medical certificate to subject coordinator or other person designated by the head of department, no later than three working days after the absence. Later submission is accepted, if student could not provide it for justified reasons, then the document should be delivered as soon as the reason of absence ceases. The form of completing missed classes is determined by the teacher.

In-person classes are held under sanitary conditions.

Students are required to change their shoes and leave the outer garments in the cloakroom. During practical classes student must wear an apron, disposable gloves, and have their hair tied up or wear a cap

It's forbidden to use cell phones and other electronic devices during classes, student may bring into the classroom only items permitted by the teacher.

The course is completed in a form of MCQ test.

If the absence from the test is excused, student has the right to pass the course at the next date set by the department.

Unexcused absence means failing the subject on the first attempt.

Student failing any midterm tests or final one in a subject ending with a credit, has right to two oral retakes.

Departments' websites: <https://propedeutyka-stomatologiczna.wum.edu.pl>
<https://periodontologia.wum.edu.pl>

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ATTENTION

The final 10 minutes of the last class in the block/semester/year should be allocated to students'
Survey of Evaluation of Classes and Academic Teachers