

Morphology and Embryology														
TOTAL per year:		10												
Division of Anatomy, Department of Human Morphology and Embryology														
Educational objectives (max. 6 items) C1. To discuss selected medical aspects of age-related diseases and geriatric syndromes. C2. To provide an overview of the links between aging and the wide spectrum of age-related diseases. C3. To promote critical thinking in students with respect to various emerging scientific theories and concepts as well as novel approaches in science and medicine.														
Education result matrix for module/course in relation to verification methods of the intended education result and the type of class														
Number of course education result	Number of major education result	Student who completes the module/course knows/ <u>is able to</u>	Methods of verification of intended education results (forming and summarising)	Form of didactic class <i>**enter the abbreviation</i>										
K 01	B.W28	discuss the fundamental concepts and theories of biological aging	Written response	SE										
K 02	B.W28 E.W8	explain how cells, organs and major organ systems change with age in humans	Written response	SE										
K 03	B.W28 E.W8	describe the changes that occur at the molecular, cellular, tissue and organism levels and their concomitant processes	Written response	SE										
K 04	B.W19 B.W22 B.W34	explain the role of selected factors and processes involved in the aging process ; describe the principles of experimental research into the biology of aging	Written response	SE										
K 05	E.W9	characterize and discuss the links between aging and age-related diseases	Written response	SE										
S 01	E.U16 E.U25	lead a healthy lifestyle	Oral response	SE										
S 02	E.U16 E.U25	seek and present new data and methods of research	Oral response	SE										
S 03	E.U25	develop new approaches to test the current views and theories of aging	Oral response	SE										
S 04	B.W28 B.W34	solve mathematical equations in respect of modeling of selected	Oral response	SE										

	E.U25	theories of senescence		
<p>** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning .</p>				
<p>Please mark on scale 1-5 how the above effects place your classes in the following categories: communication of knowledge, skills or forming attitudes: Knowledge: 5 Skills: 4</p>				
Student's amount of work (balance of ECTS points)				
Student's workload (class participation, activity, preparation, etc.)			Student Workload (h)	
1. Contact hours:			10	
2. Student's own work (self-study):			3	
Total student's workload			13	
ECTS points for module/course			0.5	
Comments			None.	
Content of classes (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)				
<p>Seminars 1-2. Basic concepts of aging: definitions, models, methods and tools for studying aging. 3-4. Modern theories of senescence. 5-6. Aging at the molecular and cellular level. Oxidative damage. Mitochondrial dysfunction. Telomeres. Cellular senescence. Chronic low-grade systemic inflammation. Epigenetics of aging. 7-8. Inflammaging. Malleability and plasticity of aging. The role of biological determinants and selected modifiable components of lifestyle. 9-10. Perspectives on biogerontology. The final test.</p>				
Basic literature				
1. Arking, R. (2019). <i>The Biology of Longevity and Aging. Pathways and Prospects. 4th ed.</i> New York: Oxford University Press. 2. Chmielewski, P. (2017). Rethinking modern theories of ageing and their classification: the proximate mechanisms and the ultimate explanations. <i>Anthropological Review</i> , 80(3), 259–272. 3. McDonald, R.B. (2013). <i>Biology of aging.</i> New York: Garland Science.				
Additional literature and other materials				
1. Bilder, G.E. (2016). <i>Human biological aging: from macromolecules to organ systems.</i> New York: Wiley-Blackwell. 2. Chmielewski, P.P. (2020). Human ageing as a dynamic, emergent and malleable process: From disease-oriented to health-oriented approaches. <i>Biogerontology</i> , 21, 125–130. 3. Chmielewski, P.P., Strzelec, B. (2018). Elevated leukocyte count as a harbinger of systemic inflammation, disease progression, and poor prognosis: a review. <i>Folia Morphologica</i> , 77, 171–178.				
Didactic resources requirements (e.g. laboratory, multimedia projector, other...)				
Preliminary conditions (minimum requirements to be met by the student before starting the module/course) None.				

Conditions to receive credit for the course

Course attendance is mandatory and strictly enforced. A student who misses any meeting or who arrives late or leaves early will not be eligible to take the final test and will not pass the course. In regard to dean's hours, rector's days and excused absences, i.e. when on sick leave but a sick note must be provided to cover the absence period and this can happen only once during the course, students must make up for each absence. Students are expected to be professional, responsible and polite. Based on the attendance rate, students will be eligible to take the final test. The test will cover both open and closed, e.g. multiple choice, questions from the fields of biochemistry, genetics, physiology and mathematical modeling of theories of senescence. To pass the test students have to score at least 60%.

Grade:	Criteria for course
Very Good (5.0)	98-100%
Good Plus (4.5)	91-97%
Good (4.0)	81-90%
Satisfactory Plus (3.5)	71-80%
Satisfactory (3.0)	60-70%

Results that are lower than 60% are classified as 2.0.

Grade:	Criteria for exam (if applicable)
Very Good (5.0)	
Good Plus (4.5)	
Good (4.0)	
Satisfactory Plus (3.5)	
Satisfactory (3.0)	

Name of unit teaching course:	Division of Anatomy, Department of Human Morphology and Embryology, Faculty of Medicine, Wrocław Medical University
Address	6a Chalubinskiego Street 50-368 Wrocław, Poland
Phone	71 784 13 30
E-mail	agnieszka.perlicka-lukaszun@umed.wroc.pl

Person responsible for course:	Dr. Piotr Paweł Chmielewski, PhD in Human Biology
Phone	71 784 13 45
E-mail	piotr.chmielewski@umed.wroc.pl

<i>List of persons conducting specific classes:</i>	<i>degree/scientific or professional title</i>	<i>Discipline</i>	<i>Performer profession</i>	<i>Form of classes</i>
Piotr Paweł Chmielewski, BSc, MSc, PhD	BSc, MSc, PhS in Human Biology	Human Biology, Anatomy	Anatomist, Academic teacher	SE

Date of Syllabus development

30.05.2020

Syllabus developed by

Piotr Paweł Chmielewski, PhD

Uniwersytet Medyczny w Wrocławiu
 Katedra i Zakład Anatomii
 ZAKŁAD ANATOMII
 p.o.
 dr Zygmunt...
 Signature of Head of teaching unit

Signature of Faculty Dean

Wrocław Medical University
 Vice-Dean for English Studies
 prof. Beata Sobieszcańska, PhD

