

SYLABUS

Winter semester 2021/2022

(Lectures will be held Thursdays starting on 7 October 2021 online)

Course	Developmental biology
Host Institution	Institute of Human Genetics Polish Academy of Sciences Strzeszyńska Street, 32
Language	English
The expected effects of teaching in terms of: knowledge, skills and social qualifications	<p>Ph. D. student is supposed to:</p> <p>1. Gain knowledge in several aspects of genetics of human development and its significance in human health and disease.</p> <p>In particular, the following specific topics will be elaborated:</p> <ul style="list-style-type: none">-mechanisms of sex determination and development-specification and development of germ cells-molecular mechanisms of body patterning-epigenetics including parental imprinting and disease syndromes when it goes wrong-epigenetic decisions in mammalian germ cells-chromatin epigenetic marks-molecular mechanisms of X-chromosome inactivation-pathologies due to abnormalities of X-chromosome inactivation-posttranscriptional control in development, including body patterning, germ cell development, sex determination-importance of untranslated 3'UTR and 5'UTR regions in translational regulation and their involvement in human diseases-machineries of RNA storage and degradation: P-bodies and stress granules-chromatoid body – a center of RNA processing involving microRNAs in mammalian male germ cells, analogies with somatic P-bodies-role of PIWI proteins and piRNAs in maintenance of the male germ-line-stem cell niche in its role in stem cell maintenance-asymmetric and symmetric stem cell divisions in development and cancer

	<p>-generation of gametes from embryonic stem cells</p> <p>2. Get familiar with new directions in the field of studying genetics of human development</p> <p>3. Learn how to formulate scientific questions related to genetics of human development</p>
Type of course	facultative
Semester/year	Winter semester 2021/2022
First name/family name of the person responsible for the course	Prof. dr hab. Jadwiga Jaruzelska
First name/family name of the person responsible for the exam	Prof. dr hab. Jadwiga Jaruzelska
Format	Lecture will be held in English with usage of audio-visual equipment. Lecture will be followed by discussion
Basic and additional requirements	Skills in English and knowledge in molecular biology
Number of ECTSs	2 ECTS
Number of lectures	12 h
Method of teaching	Lectures will be held using power point presentation and a multimedia projector
Method of evaluation	Written exam
Prerequisite for passing	Positive score at the exam
Topics	<p>-Mechanisms of sex determination and development</p> <p>-Germ cells</p> <p>-Body patterning</p> <p>-Epigenetics in development</p> <p>-Posttranscriptional control in development</p> <p>-Stem cells, stem cell niche</p>
Additional material	<p>Presentation of each lecture in PDF format</p> <p>Bibliography related to each lecture</p>
Bibliography	Will be suggested later