Course Title: Genetics and Molecular Biology
Coordinator /contact: Prof. Marek Sanak /e-mail: marek.sanak@uj.edu.pl

Responsible person/contact: Prof. Marek Sanak /e-mail: marek.sanak@uj.edu.pl

Address: Division of Molecular Biology and Clincal Genetics, 8 Skawinska Str.
Year: **1**-6, 2017

Total number of hours: **30 hrs**
Lectures: **20 hrs**

Seminars: **6 hrs** – each student has to prepare essay (2 pages text max.) on topic selected from 3 seminars, may obtain up to 4 additional points (totals with exam score)

Labs/Practicals: **2 hrs** - groups A-J (Biochem/Genet), Fri 15.30- 17.00
Location: Department of Internal Medicine, Skawinska Str. 8, Laboratory

Exams: **2 hrs**

Conduct/Dress Code: white coat during lab meeting obligatory

Student's Evaluation:

-credit requirements: final exam score – date Jun 6 2017, 10:15 – 11:45 CDK-LHA
-attendance requirements: lab meeting (each student comes once) and seminars – attendance will be checked: only single absence allowed
-type of the final exam: a multiple choice test, threshold calculated on the performance of whole class
-retake information: test, Sept 20, 10.00-11.30 CDK

	Day	Time	Type of classes	N0 of hours	Group	Topic	teacher	place
21.02.2017	Tue	10:00-11:30	lec	2	whole class	Basic tools in biotechnology (restriction endonucleases, oligonucleotide probes, reverse transcriptase, cloning vectors). Sequencing of DNA. Genomic and cDNA libraries. Synthesis of recombinant DNA.	Sanak	LHA
24.02.2017	Fri	15:30-17:00	lab	2	Gr A	Lab meeting – DNA sampling	Sanak	Skawinska
28.02.2017	Tue	10:00-11:30	lec	2	whole class	Control of gene expression: positive and negative, attenuation and interference. Eukaryotic genome organization and control of gene expression.	Sanak	LHA
03.03.2017	Fri	15:30-17:00	lab	2	Gr B	Lab meeting – DNA sampling	Sanak	Skawinska
07.03.2017	Tue	10:00-11:30	lec	2	whole class	Human nuclear and mitochondrial genome. Genetic linkage and markers	Sanak	LHA
10.03.2017	Fri	15:30-17:00	lab	2	Gr C	Lab meeting – DNA sampling	Sanak	Skawinska
14.03.2017	Tue	10:00-11:30	lec	3	whole class	Mendel's laws and patterns of inheritance: mechanisms of recessive and dominant traits, pedigree symbol	Sanak	LHA
17.03.2017	Fri	15:30-17:00	lab	2	Gr D	Lab meeting – DNA sampling	Sanak	Skawinska
21.03.2017	Tue	10:00-11:30	lec	2	whole class	Multifactorial inheritance. Population genetics.	Sanak	LHA
24.03.2017	Fri	15:30-17:00	lab	2	Gr E	Lab meeting – DNA sampling	Sanak	Skawinska

28.03.2017	Tue	10:00-11:30	lec	2	whole class	Inheritable diseases. Chromosomal abnormalities.	Sanak	LHA
31.03.2017	Fri	15:30-17:00	lab	2	Gr F	Lab meeting – DNA sampling	Sanak	Skawinska
04.04.2017	Tue	10:00-11:30	lec	2	whole class	Molecular diagnostics of common genetic diseases	Sanak	LHA
07.04.2017	Fri	15:30-17:00	lab	2	Gr G	Lab meeting – DNA sampling	Sanak	Skawinska
11.04.2017	Tue	10:00-11:30	lec	2	whole class	Stem cells, regenerative medicine and small RNA molecules	Sanak	LHA
25.04.2017	Tue	10:00-11:30	lec	2	whole class	Risk calculations in genetics. Relative risk and odds ratio	Sanak	LHA
28.04.2017	Fri	15:30-17:00	lab	2	Gr H	Lab meeting – DNA sampling	Sanak	Skawinska
9.05.2017	Tue	10:00-11:30	lec	2	whole class	Heritability of common phenotypes. Gene-environment interactions. Possibility of genetic interventions	Sanak	LHA
12.05.2017	Fri	15:30-17:00	lab	2	Gr I	Lab meeting – DNA sampling	Sanak	Skawinska
16.05.2017	Tue	10:00-11:30	sem	2	whole class	Novel biotechnology concepts: genetically modified organisms, artificial organs, models of human disease	Sanak	LHA
23.05.2017	Tue	10:00-11:30	sem	2	whole class	Conformational diseases: inherited versus acquired. Ageing theories.	Sanak	LHA
26.05.2017	Fri	15:30-17:00	lab	2	Gr J	Lab meeting – DNA sampling	Sanak	Skawinska
30.05.2017	Tue	10:00-11:30	sem	2	whole class	Successful and failed gene therapies. Cloning of organisms and cells	Sanak	LHA
06.06.2017	Tue	10:00-11:30	exam	2	whole class	40 questions, single choice, scrambled versions		LHA

Lab/practicals: visit to the clinical laboratory, examples - DNA extraction and detection of allelic variants (RFLP. real-time PCR)