

# An interdisciplinary summer school on mining of biological data for master and PhD students

**August 2019, Minsk, Belarus**

	Saturday 10.	Sunday 11.	Monday 12.	Tuesday 13.	Wednesday 14.	Thursday 15.	Friday 16.	Saturday 17.	
Time			Course	Course	Course	Course	Course	Mini-workshop	
8:15-8:30			Introduction						
8:30-9:15	Arrival and check in at the hotel, dinner	Social program whole day: Tour to the Castles of Mir and Nesvizh. Lunch will be served	<b>Orange Introduction</b> (Dr. Marko Toplak University of Ljubljana and SMIS Beam-line Synchrotron Soleil)	Invited lecture: Peter Nazarov, Luxembourg Institute of Health, Department of Oncology <b>Single Cell transcriptomics</b>	<b>Orange Introduction</b> (Dr. Marko Toplak)	Invited lecture: Dr. Ferenc Borondics, SMIS Beam-line Synchrotron Soleil, Paris, France <b>Big facilities, big data</b>	Invited lecture: Dr. Ferenc Borondics, SMIS Beam-line Synchrotron Soleil, Paris, France <b>Challenges in data analysis of infrared spectra from biological and biomedical samples</b>	Workshop with research presentations by PhD students	
09:15-10:00			Module 3: Spectroscopic methods (Olga)	Module 4: Analytical methods used in biology (Olga)	Module 5: Biomedical Imaging (Vassili)	Group work (Experts in a Team)	Group work (Experts in a Team)		
10:00-10:15			Break						
10:15-10:45			Module 6: Basic Statistics (Victor)	Module 9: Machine learning (Roman)	Module 12: Data pre- treatment (Achim)	Group work (Experts in a Team)	Group work (Experts in a Team)	Workshop with research presentations by PhD students	
10:45-12:00			Tutorial: Basic statistics (Victor)	Tutorial: Machine learning (Roman)	Tutorial: Data pre- treatment (Achim)				
12-13			Lunch						
13:00-13:30			Module 7: PCA (Achim)	Module 10: Deep learning (Vassili) Room: U227	Tutorial for modules 6- 12, further Data Analysis and Orange Rooms: U223 and U226  Topics for group work will be distributed together with the data	Group work (Experts in a Team)	Group work presentations	Workshop with research presentations by PhD students	
13:30-14:45			Tutorial: PCA (Achim)	Tutorial: Deep learning (Vassili)					
14:45-15:00			Break						
15:00-15:30			Module 8: Clustering (Petr)	Module 11: Data analysis of genetic data (Vasily)					
15:30-16:45			Tutorial: Clustering (Petr)	Tutorial: Data analysis of genetic data (Vasily)					
Evening			Volley ball/soccer and barbecue	Claustrophobia Escape rooms	Alivaria beer museum	Free	Free	Workshop dinner	

All lecture rooms are in the faculty of International Relations.