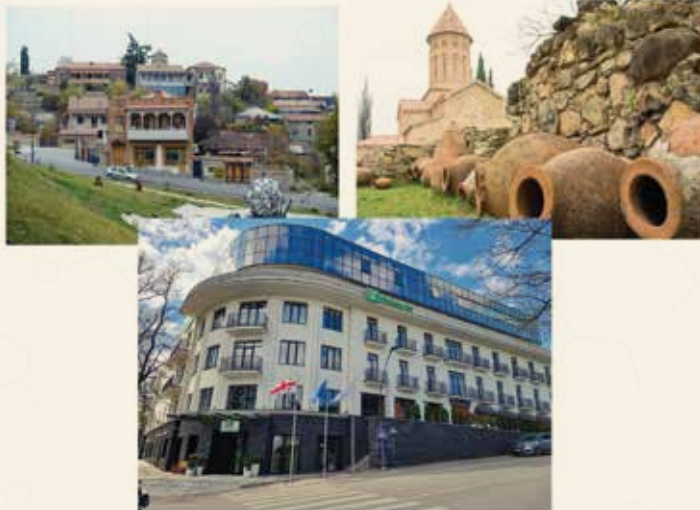




Translational Epigenetics in Precision Medicine

October 31 - November 3
2026

Holiday Inn
Telavi, Georgia

PROGRAMME

Course Organizers: Tbilisi State Medical University (TSMU)
Georgian Society of Medical Genetics and Epigenetics (GSMGE)
Supported by the European Society of Human Genetics (ESHG)

Venue: Holiday Inn; 2 Rustaveli Avenue, 2200 Telavi, Georgia
Course website: <http://geneticsgeorgia.org/en/epigenetics-course/>
Email: epicourse@tsmu.edu

DAY 1
Basic Concepts of Epigenetics

10.45	Registration	
11.00-11.45	Opening remarks; Course overview	
11.45-12.30	Epigenetic mechanisms: DNA methylation and demethylation; histone modifications and nucleosomes	
12.30-13.00	Coffee break	
13.00-13.45	DNA methylation epigenatures fundamentals: from molecular profiles to AI biomarkers	
13.45-14.30	Mechanisms of chromatin remodeling, ATP-dependent chromatin remodeling, chromatin remodeling complexes	
14.30-15.30	Lunch break	
15.30-16.15	Genomic imprinting in mammals; Dosage compensation: X inactivation; Epigenetic regulation in stem cells and cell reprogramming	
16.15-17.00	Genome-wide methylation detection and epigenature analysis using PacBio long-read sequencing	
17.00-17.30	Coffee break	
17.30-18.15	Epigenetic Regulation by Non-Coding RNAs: Focus on MicroRNAs	
19:00	Welcome Dinner	

DAY 2
Cancer Epigenetics

09.00-09.45	Introduction to Cancer Epigenetics; Innovative epigenomic approaches in cancer diagnosis and treatment	
09.45-10.30	Genome-wide methylation profiling for diagnosis and prognosis in childhood leukemia	
10.30-11.00	Coffee break	
11.00-11.45	Epigenetics drug design; Epigenetic therapy: DNA methyltransferases inhibitors; Histone deacetylase inhibitors (HDACi)	
11.45-12.30	Epigenetic epidemiology: Epigenetics in EWAS and DOHaD	
12.30-13.30	Lunch break	
13.30-14.15	Genome Instability and Cancer: The Role of Repetitive Element Methylation	
15.00-18.00	Cultural networking event and educational excursion	

DAY 3 Epigenetics in rare Diseases		
09.00-09.45	Genetics meets epigenetics in rare diseases; Mendelian diseases with epigenetic machinery: Disease Classification/Characterization	
09.45-10.30	Orchestrating genetics and epigenetics from a clinical perspective: lessons learned from Rubinstein-Taybi and Cornelia de Lange syndromes and beyond	
10.30-11.00	Coffee break	
11.00-11.45	The epigenetics of dysmorphology: Overgrowth and growth restriction syndromes	
11.45-12.30	Clinical Case Discussion: Peculiarities of inheritance pattern of Angelman syndrome	
12.30-13.30	Lunch break	
13.30-14.30	Workshop: Clinical applications of DNA methylation epesignatures in rare diseases.	
14.30-15.00	The complexity of Beckwith-Wiedemann and Silver-Russell syndromes: Anticipation and mixed phenotypes	
15.00-15.30	Coffee break	
15.30-16.30	Clinical case discussion	Course participants
16.30-17.50	Q&A Session	Discussion with Faculty Panel
18.00	Networking Dinner	

DAY 4
Environmental Epigenetics and Its Implication on common diseases

09.00-09.45	Genetics, epigenetics and environment; Environmental epigenomics and disease susceptibility; Aging and the epigenetic clock	
09.45-10.30	Epigenetic mechanisms of brain plasticity in the context of peripheral trauma	
10.30-11.00	Coffee break	
11.00-11.45	Epigenetics in complex diseases: Cardiovascular diseases	
11.45-12.30	Statistical approaches in epigenetic studies	
12.30-13.30	Lunch break	
13.30-14.15	Epigenetics, Nutrition, and Metabolic Health	
14.15-15.00	Translational Epigenetics: Animal model adoption for translational and basic research	
15.00-15.30	Coffee break	
15.30-16.30	Written test and feedback	
16.30-16.45	Closing remarks	