

Molecular Biology
1st year MD 2025/2026

Course Coordinator: Professor Anna Jankowska, Ph.D.

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Lectures: 12h

1. Genome structure and function (2h). *Lecturer: Prof. Anna Jankowska, Ph.D.*
2. Genetic diversity: mutations, DNA polymorphisms. Genotype-phenotype relations (1h 45min).
Lecturer: Prof. Anna Jankowska, Ph.D.
3. Flow of genetic information (1h45min) *Lecturer: Aleksandra Śliwa, Ph.D*
3. Regulation of gene expression (2h). *Lecturer: Aleksandra Śliwa, Ph.D*
5. Population genetics and personalized medicine (1h 30min). *Lecturer: Bartłomiej Budny, Ph.D.*

Seminars: 6h

1. DNA damage, repair, and recombination (1h 30min). *TA: Maria Wołuń-Cholewa, Ph.D.*
2. Gene-based therapeutic approaches (1h 30min). *TA: Małgorzata Tokłowicz, Ph.D*
3. Stem cells and their application in medicine (1h 30min). *TA: Aleksandra Śliwa, Ph.D.*
4. Genetic Analysis Techniques. (1h 30min). *TA: Wiktoria Urban, M.Sc.*

Practicals: 20h

1. RT-qPCR for COVID-19 diagnostics (3h). *TA: Piotr Biały, Ph.D.*
2. Production of recombinant human insulin (3h 45min). *TA: Aleksandra Śliwa, Ph.D.*
3. Gene therapy in oncology (3h 45min). *TA: Prof. Anna Jankowska, Ph.D.*
4. Diagnostic and therapy with computational molecular biology (3h). *TA: Wiktoria Urban, M.Sc.*

Required textbooks:

1. Ronald W. Dudek: High-Yield Cell and Molecular Biology, Third Edition, Lippincott, 2010.
2. Alexander McLennan, Andy Bates, Phil Turner, Mike White: BIOS Instant Notes in Molecular Biology, Garland Sciences 2013