

Conducator doctorat: C.S.I. Dr. Habil. Vlad Cojocaru

Tematica concursului de admitere la doctorat (loc cu bursa):

1. Structura ADN-ului de la dublul helix pana la organizarea in genome
2. Structura proteinelor; metode experimentale si teoretice de determinare a structurii proteinelor
3. Tipuri de interactiuni intre proteine si acizi nucleici si rolul acestora in celule
4. Regularea genelor
5. Metode computationale de studiu al biomoleculelor si interactiunilor acestora (inclusiv concepte de baza in linux si programare)

Bibliografie:

- Stryer, L., et al. (2019): *Biochemistry*. 9th Edition
- Sanger, W. (1984): *Principles of Nucleic Acids Structure*. Springer Verlag.
- Stigliano A.F. (2020): *Biomolecular Interfaces*. Springer Verlag
- Leach, A. R. (2001): *Molecular Modeling: Principles and Applications*. (2nd or 3rd edition)
- Schlick, T. (2013): *Molecular Modeling and Simulation: An Interdisciplinary Guide*
- Mistelli, T. (2020): The Self-Organizing Genome: Principles of Genome Architecture and Function. Cell 183(1):28-45 (<https://doi.org/10.1016/j.cell.2020.09.014>)
- Lambert SA et al (2018): The Human Transcription Factors (<https://doi.org/10.1016/j.cell.2018.01.029>)
- Zaret KS (2020). Pioneer Transcription Factors Initiating Gene Network Changes (<https://doi.org/10.1146/annurev-genet-030220-015007>)

Software tutoriale recomandate:

VMD (<https://www.ks.uiuc.edu/Research/vmd/>)

Amber (www.ambermd.org)

Haddock (<https://www.bonvinlab.org/software/>)

Chimera (<https://www.cgl.ucsf.edu/chimera/>)