THEORY AND COMPUTATIONAL METHODS FOR BIOLOGICAL PHYSICS

Dr. Velia Minicozzi

1) STATISTICAL MECHANICS

2) CLASSICAL MOLECULAR DYNAMICS

3) STOCASTIC METHODS FOR THE EVALUATION OF THE PARTITION FUNCTION
The Monte Carlo method. Markov chains, the detailed balance principle, the Markov theorem, the Metropolis algorithm. Hybrid Monte Carlo. Brownian motion and the Langevin equation. The Fokker-Planck equation and its asymptotic solution.

4) FERMIONIC SYSTEMS IN CONDENSED MATTER

5) APPLICATION TO BIOMOLECULES

6) PARALLEL PLATFORM PROGRAMMING TOOLS
Code structure for the molecular dynamics OF biomolecules. Agent-oriented programing.