

# Schedule (FunMolSim - 2019)

| Date & Day     | Time           | Session          | Speaker          | Topic   |
|----------------|----------------|------------------|------------------|---|
| March 5, Day 1 | 8.30-9.00 am   | Registration     |                  |   |
|                | 9.00-10.30 am  | Lecture          | Jayant Singh     | Introduction to Molecular Simulations, Ensembles and Connection to Thermodynamics |
|                | 10.30-11.00 am | Tea Break        |                  |   |
|                | 11.00-12.30 pm | Lecture/Tutorial | Jayant Singh     | Computing Interaction Potential Forces  |
|                | Lunch Break    |                  |                  |   |
|                | 2.00-3.30 pm   | Lecture          | Pankaj Apte      | Basics of Molecular Dynamics Simulation   |
|                | 3.30-4.00 pm   | Tea Break        |                  |   |
|                | 4.00-5.30 pm   |                  | Pankaj Apte      | Molecular Dynamics Simulations  |
| March 6, Day 2 | 9.00-10.30 am  | Lecture          | Ganapathy Ayappa | Extended Systems Molecular Dynamics, NVT, NPT                                     |
|                | 10.30-11.00 am | Tea Break        |                  |   |
|                | 11.00-12.30 pm | Tutorial         | Ganapathy Ayappa | Tutorial on extended systems MD   |
|                |                | Lunch Break      |                  |   |
|                | 2.00-5.00 pm   | Lab session      | Sandip Khan      | Hands on MD s/w -LAMMPS, GROMACS  |

|                |                |                      |                          |   |
|----------------|----------------|----------------------|--------------------------|---|
| March 7, Day 3 | 9.00-10.30 am  | Lecture              | Jayant Singh             | Monte Carlo Simulations: Importance Sampling – Metropolis Method                |
|                | 10.30-11.00 am | Tea Break            |                          |   |
|                | 11.00-12.30 pm | Tutorial/Lab Session | Jayant Singh/Sandip Khan | Hands on Monte Carlo Simulation code-   |
|                | Lunch Break    |                      |                          |   |
|                | 2.00- 3.30 pm  | Lecture              | Jayant Singh/Sandip Khan | Monte Carlo in other Ensembles (NPT, GCMC)                                      |
|                | 3.30-4.00 pm   | Tea Break            |                          |   |
|                | 4.00-5.30 pm   | Tutorial             | Jayant Singh/Sandip Khan | Monte Carlo in different ensemble- case studies- Adsorption isotherm estimation |
| March 8, Day 4 | 9.00-10.30 am  | Lecture              | Jhumpa Adhikari          | Phase equilibria Calculations using molecular simulations                       |
|                | 10.30-11.00 am | Tea Break            |                          |   |
|                | 11.00-12.30 pm | Tutorial             | Jhumpa Adhikari          | Tutorial: Phase diagram calculations via MC methods                             |
|                | Lunch Break    |                      |                          |   |
|                | 2.00-3.30 pm   | Lecture              | Jayant Singh             | Free-energy methods (Parallel tempering, Umbrella sampling, Meta dynamics)      |

|                |                |               |                     |  |
|----------------|----------------|---------------|---------------------|--|
|                | 3.30-4.00 pm   | Tea Break     |                     |  |
|                | 4.00-5.30 pm   | Tutorial      | Jayant Singh        | Calculating free-energy: cases studies   |
|                | 7.30 pm        | Course Dinner |                     |  |
| March 9, Day 5 | 9.00-10.30 am  | Lecture       | Ethaya Mani         | Soft Matter Simulations-Monte Carlo and Kinetic Monte Carlo, Coarse-grain approaches |
|                | 10.30-11.00 am | Tea Break     |                     |  |
|                | 11.00-12.30 pm | Tutorial      | Ethaya Mani         | Hands on KMC simulations of Soft Matter  |
|                | Lunch Break    |               |                     |  |
|                | 2.00-3.30 pm   | Lecture       | Indranil Saha Dalal | DPD/Brownian Simulations   |
|                | 3.30-4.00 pm   | Tea Break     |                     |  |
|                | 4.00-5.30 pm   | Tutorial      | Indranil Saha Dalal | Hands on DPD and Brownian simulations  |