**Systems Biology: A quantitative way of understanding biological regulations**

**A brief introduction of the course offered:**

Systems biology is an exciting interdisciplinary and quantitative approach that provides systematic ways to understand any biological regulations. The course will have three modules. **1st Module** will cover a general introduction to the systems biology field and the basics of mathematical/computational modelling by considering classic examples from literature. **2nd Module** will provide basic training on how predictive quantitative models for any biological phenomena can be developed by combining experiment data, theory, and computational methods. In the **3rd Module**, participants (preferably forming a group) will present and discusstheir own project problems developed (with our help) during the period of this course to have hands-on training in mathematical and computational modelling to model a biological problem!!

Any student (UG, PG, or in starting phase of Ph.D.) with basic knowledge and interest in Biology, Mathematics, and a bit of computer programming skill (knowing it will be good but not essential) is encouraged to apply. We will teach all the basic skill sets that are required to enjoy the course. *The course is free of cost, but registering for it, performing all the tutorials, and taking part in the group projects are mandatory for the course completion certificate.*

**The takeaway message from the offered course:**

The participants of this course will be able to develop quantitative mathematical/computational models of their interest related to any biochemical phenomenon. They will develop an understanding of how to start thinking quantitatively to model a specific biological system.

**Instructor bio:**

Prof. Sandip Kar is currently holding the Associate Professor position in the Chemistry department at the Indian Institute of Technology Bombay, Mumbai. His research interests are Systems biology of cell cycle regulation, live-cell imaging studies, stem cell differentiation dynamics, computational Biology, protein aggregation, Enzyme kinetics, Stochastic modelling, Nonlinear dynamics, Bifurcation theory, and Chemical and Biological pattern formation. Please visit his website - https://sandipkar8.wixsite.com/sandip-kar/home to know about his group and works.