



Module PMRF-ISSS0041/II/2025

## Network Biology For Systems Biologists

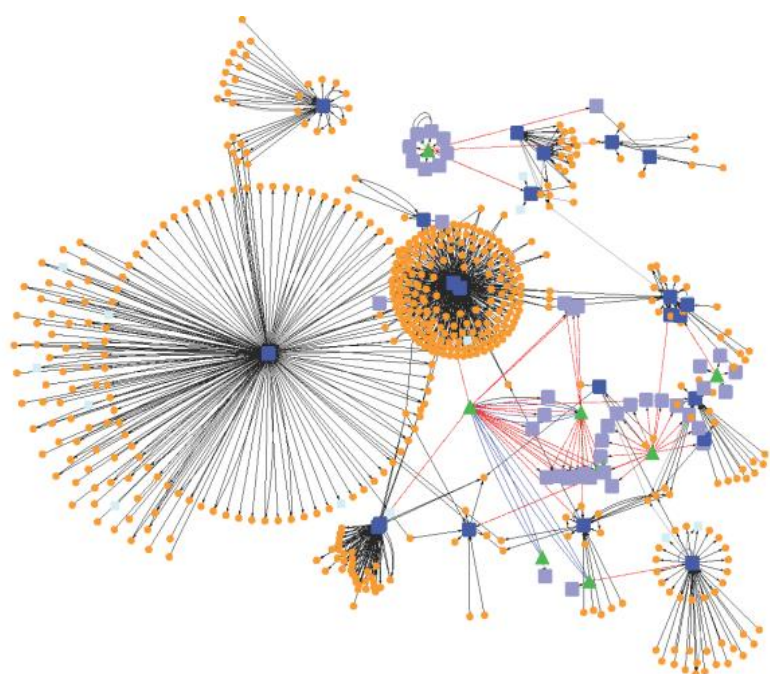
### Name of the PMRF student

Pradyumna

### Required background of the students taught

Basic Biology and Maths (Up to +2 Level)

Apart from this no other pre-requisite is required.



<https://bioinformaticsreview.com/20160322/network-biology-get-together-of-macromolecules/>

### Details of the content of the module

This course presents a series of lectures exploring fundamental concepts and methodologies in network and systems biology.

- **Biological Networks** : Types and Representations : Gene regulatory, protein-protein interaction, metabolic networks, etc.
- **Network Topology and Motifs** : Degree distribution, hubs, modularity, feedback/feedforward loops.
- **Dynamical Modeling of Networks** : Boolean models, differential equations, stochastic simulations.
- **Network Inference and Data Integration** : Reverse engineering networks from omics data, machine learning approaches.
- **Applications in Disease and Drug Discovery** : Network-based biomarkers, disease module identification, drug repurposing.

### Schedule of the module

**Start Date:** 13th April 2025

**End Date:** 27th April 2025

**Lecture Schedule:** Lectures will be uploaded on Friday, Saturdays and Sundays at 9:00 AM.

**Extra Tutorial Classes:** Additional tutorial classes can also be requested.

Meeting link : Will be shared later

[Link](#)

Contact email ID: [issforum@gmail.com](mailto:issforum@gmail.com)

Registration link:

<https://forms.gle/2UXEHBwgecYqHDvN7>