

Molecular Evolution in Bacteria

Overview

Evolution is an integral part of biology. So there is a major thrust in molecular evolution in the genomic era. However, this subject has mainly considered by scientist as too mathematical, which therefore discourage biologists to venture into it. This also affects students of biology to avoid this course. Learning molecular evolution is a fun. It needs a proper way to be taught to young investigators. Keeping this in minds and to share with scientists of India the recent developments in molecular evolution, this winter school is being proposed.

The participants of the school will be introduced to the different topics such as theories of molecular evolution, nucleotide composition in genome, strand asymmetry in chromosome, codon usage bias, selection using dN/dS and co-translational protein folding. In this school there will be both theory classes and computer laboratory demonstrations on compositional analysis, measuring codon usage bias, compute dN/dS .

Evolution study in bacteria gives insight into our basic understanding of evolutionary mechanisms. Its genome is simple. Genome G+C composition in bacteria varies from 15 to 75 %. What determines genome composition is an interesting question to understand molecular evolution in bacteria. The genome in bacteria is well organized with respect to gene distribution between the strands as well as along the ori to terminus. Bacteria also have been a model for experimental evolution in some laboratories. Recent studies on bacterial evolution will be discussed in the winter school.

Course participants will learn these topics through lectures and hands-on practical sessions. Also case studies and assignments will be shared to stimulate research motivation of participants.

Modules	Molecular evolution in bacteria : December 05 – December 15, 2016 Number of participants for the course will be limited to THIRTY.
You Should Attend If...	<ul style="list-style-type: none">▪ You are college/university faculty member or scientist from research institutions and interested in genetics, molecular biology and evolution.▪ You are a Post doc or PhD student pursuing research in molecular evolution, comparative genomics, computational biology or similar field.
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$100 Faculty Members/Scientists/Post docs: Rs. 3000.00 (Three thousand only) PhD students: Rs. 1500.00 (Fifteen hundred only) The above fee includes registration fees, lunch/dinner, all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr. free internet facility. Accommodation on payment basis will be provided in Tezpur University guest house for Rs 500.00 per day. PhD Student participants may avail accommodation in University hostel by paying Rs 50.00 per day.

The Faculty



Professor Edward Feil is a member of faculty at The Milner Centre for Evolution, Department of Biology and Biochemistry, University of Bath, UK. His research interests focus on short-term evolutionary processes in bacteria, the strength of purifying selection, rates of recombination, and mutation profiles. He also has a strong focus in using whole genome sequencing for understanding the emergence and transmission of bacterial pathogens of humans and animals.



Dr. Suvendra Kumar Ray is an Associate professor in the department of Molecular Biology and Biochemistry, Tezpur University, Tezpur. His areas of research are molecular plant microbe interactions and molecular evolution.



Dr. Siddhartha Sankar Satapathy is an Associate Professor in the department of Computer Science and Engineering, Tezpur University, Tezpur. His research interests include computational biology and bioinformatics.

Course Co-ordinator

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