

# INTEGRATIVE COMPUTATIONAL APPROACHES FOR EXPOSOME ANALYSIS

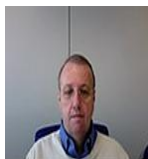
## Overview

The reduction of pollution is mandatory to strengthen a sustainable development. Mitigation of harmful effects of pollution is a global challenge. The terms 'envirome' and 'exposome' were coined to signify an integrated analytical approach encompassing different facets of exposure to contaminants. These new multidisciplinary approaches are mainly focused on human health risk assessment and to support the establishment of protocols and rules directed to mitigate the damage on human health and biodiversity. One of the major difficulty in order to efficiently face the exposure, in a 'olistic' way, is the large number of different heterogeneous data that have to go to be analysed at the same time. The availability of powerful IT infrastructure plays a pivotal role in view of improving the risk assessment for human health. The development of new decision support system cannot be based on the integrated analysis of various information (molecular, epidemiological, geophysical and socio-economical). It is easy to understand that the development of similar system is very complex. In order to face this problem it is necessary to integrate different aspects of IT as bio-informatics, statistical genetics, chemo-informatics and epidemiology.

In lesser extent, it is possible to implement smaller and highly specialized tools committed to resolve specific problems. The design of 'ad hoc' computational workflows and their efficient implementation is a valuable support to tackle the effects chronic exposure problem in a more comprehensive way. The aim of proposed course is to give the IT instruments to look toward the environmental risk assessment taking different aspects into account. Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

<b>Course duration</b>	<b>December 5–December 9, 2018 (5 days)</b> <b>Number of participants for the course will be limited to fifty.</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"> <li>•you are an environmental engineer or research scientist involved in Public Health (environmental, occupational) government organizations/ academic institutes and interested in enhancing your capability to optimize the selection and integration of data sources to approach and resolve a specific problem in environmental toxicology.</li> <li>•you are R&amp;D professional and faculty in reputed academic institutions and technical Institutions and wish to Increase your capability to harmonize the languages involved in an integrated risk assessment decision support system development.</li> <li>▪you are a student (B Tech/MSc/MTech/PhD) or Postdoc or faculty from academic institution interested in learning computational biology and bioinformatics methods to face the problem of heterogeneous data mining on structured and unstructured data.</li> <li>▪you are a student (B Tech/MSc/MTech/PhD) or Postdoc or faculty from academic institution interested in gaining knowledge of basic toxicogenomics with reference to the role of the different environmental contexts (air, soil, water).</li> </ul>
<b>Fees</b>	<p>The participation fees for taking the course is as follows:</p> <p><b>Participants from abroad : US \$ 500</b></p> <p><b>Industry/ Research Organizations within India: ` Rs. 15000</b></p> <p><b>Faculty/Staff from Academic Institutions within India: Rs. 5000</b></p> <p><b>Students from India:</b></p> <p><b>Ph.D./Post-doctoral : Rs. 2000/3000</b></p> <p><b>M.Tech./M.Sc. : Rs. 1000</b></p> <p>The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility.</p> <p>Boarding, lodging and meal charges are not included in the fees. The participants will be provided with accommodation on a payment basis.</p>

## The Faculty



**Dr Patrizio Arrigo** is a CNR Scientist. He is part of the Institute of Macromolecular Studies in Genoa, Italy and is responsible of Computational Integrative Approach for structural genomics. His current research activity is focused on prediction of molecular effect induced by long term exposure to pollutant mixtures



Dr. Kamal Raj Pardasani is a Professor in Department of Mathematics , Bioinformatics and Computer Applications at Maulana Azad National Institute of Technology, Bhopal , India. His research interests are Computational & Systems Biology (Computational Neuroscience, Computational Cell Biology, Computational Thermal Biology, Cognitive Science), Data Science ( Data Analytics, Data Warehousing and Mining) , Finite Element Modeling and Modelling Simulation

## Course Co-ordinator

**Dr. Kamal Raj Pardasani**

**PROFESSOR,**

**Department of Mathematics,  
Bioinformatics & Computer  
Applications**

**Maulana Azad National Institute of  
Technology, Bhopal, India**

Phone: 0755-4051552

E-mail: kamalraj@rediffmail.com

.....  
<http://www.gian.iitkgp.ac.in/GREGN>