

Molecular Entomology

Overview

Molecular Entomology program is designed to provide in-depth knowledge on various aspects of Insect Science and its application to research and development in plant, human, animal and environment health. The program is tailored to help formulate adequate strategy to fast track application of entomology in addressing research questions and provide solutions to be used for development of viable products maintain environmental diversity and add value to the quality of life. Students will be ex-posed to theoretical and practical aspects of Insect Systematics, population genetics, genome organization, physiology, diversity, pathology, biotechnology and toxicology, with emphasis on molecular aspects.

The course would consist of lecture and practical sessions to familiarize students with the theory and practice of Molecular Entomology. Furthermore it will also provide a clear understanding about the recent advances in insect research and its application to plant, human, animal and environmental health.

Modules	Module: Theory and practice of molecular entomology : 19 to 28 June 2017 Number of participants for the course will be limited to fifteen.
You Should Attend If...	Students and Researchers from Universities, Research Institutions and government organizations including R&D laboratories.
Fees	No participation fees for the course Instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges and internet facility will be provided free. The participants will be provided with boarding and Lodging in University Guest House on payment basis.

Course details

<u>Lecture 1: Insect Genomics</u>	<u>Lecture 6: Applications of molecular tools for insect pest management II: Insect transgenesis</u>
<u>Lecture 2: Molecular marker systems in insects: current trends and future avenues.</u>	<u>Tutorial 3: Exploring of novel resistance candidate genes through functional annotation, classification and pathway analysis.</u>
<u>Tutorial 1: Identify a sequenced insect/arthropod of interest and learn how to navigate various web-based resources.</u>	<u>Lecture 7: Applications of molecular tools for insect pest management I: Gene silencing–Insect microRNAs</u>
<u>Lecture 3: Molecular taxonomy and DNA barcoding</u>	<i>Formulation of student project proposals</i>
<u>Lecture 4: Transcriptomes and Next generation sequencing</u>	<u>Tutorial 4: Identification and target prediction of insect miRNAs.</u>
<u>Tutorial 2: DNA barcode Data analysis, DNA sequencing.</u>	<u>Lecture 8: Students project proposal presentation</u>
<u>Lecture 5: Applications of molecular tools for insect pest management I: insecticide resistance and transgenic crops</u>	<i>Course evaluation for students</i>

Teaching Faculty



Wenqing Zhang is a Deputy Dean of School of Life Sciences at SunYat-sen University and holds a joint appointment as a Professor with the State Key Laboratory of Biocontrol. He leads a research group that links Biocontrol of agricultural insect pests, RNA interference (RNAi) in insects, Insect chitin metabolism and Insect reproduction and gustatory receptors research with novel molecular approaches, and was an early proponent of RNAi research and more recently developed transcriptomic and proteomic analyses for brown plant hopper in relation to insecticide resistance. He provided the first report of a miRNA-gene network that regulates chitin biosynthesis at the genome scale. Prof. Wenqing Zhang is the director of a long-standing Masters course in Principles and methods of biocontrol (for undergraduates) and Biostatistics (for graduates) taught at SunYat-sen University.



Alfried Vogler is Professor of Molecular Systematics at Imperial College and holds a joint appointment with the Natural History Museum. He leads a research group that links museum-type taxonomic research with novel molecular approaches, and was an early proponent of DNA taxonomy (barcoding) and more recently developed genomic methods for the study of biodiversity. He currently leads the NHM's Biodiversity Initiative, which conducts molecular biodiversity surveys in endangered ecosystems around the world. Prof. Vogler is the director of a long-standing Masters course in Taxonomy and Biodiversity, jointly taught at Imperial College and the NHM. He enjoys working closely with students in the laboratory, and he has been advisor to numerous PhD students and postdocs, who now lead academic labs of their own.



G. Gurusubramanian is Professor of Zoology, Mizoram University with over 21 years of experience in research and teaching of insect-plant-microbe interactions, chemical ecology, organic farming, IPM, molecular entomology, insect bioinformatics and DNA barcoding. He is the author of more than 110 research papers and coordinator of many national and international research projects. He worked for the Biologische Bundesanstalt für land & Forstwirtschaft, Institut für biologischen pflanzenschutz, Germany as a Humboldt fellow, evaluating the potentiality of biocontrol agents and biopesticides against insect pests and involved in international tea protection programmes, pesticide certification and molecular basis of Darjeeling tea flavour.



N. Senthil Kumar, Ph.D, is Professor in the Department of Biotechnology, Mizoram University with 14 years of teaching and research experience. His field of interest includes chemical ecology, molecular phylogeny, bioinformatics, and genetic control of insect pests. He is presently working on molecular variations using DNA markers and mutation analysis. During his post doctoral stint at Sun Yat-sen University, China he was involved in RNAi studies with chitin synthase gene. He has authored more than 50 research papers and he is investigator of various national research projects. He is a Fellow of the Royal Entomological Society, UK.

Course Coordinator

Prof. G. Gurusubramanian

Department of Zoology
Mizoram University,
Aizawl, Mizoram-796004
India.

Email: gurus64@yahoo.com
Mobile: +91-9862399411

.....
<http://www.mzu.edu.in>

GIAN Course
on
Molecular Entomology
19 to 28 June 2017

Mizoram University, Aizawl – 796004.

REGISTRATION FORM

Name : _____

Gender : _____

Date of Birth: _____

Educational Qualification: _____

Designation : _____

Department / Division _____

Affiliation / Institute: _____

Mailing Address: _____

Mobile _____

E-mail: _____

Accommodation required: Yes / No

Signature of the Applicant

(Signature of the Head of the Department)
Seal

NB: Accommodation can be arranged in Guest House against payment.
Photocopy of the format may also be used.