



Dr. Harisingh Gour Vishwavidyalaya
(A Central University)
Sagar (M.P.)

GIAN

GLOBAL INITIATIVE OF ACADEMIC NETWORKS



Ministry of Human Resource Development
Government of India

A Course Under
GLOBAL INITIATIVE OF ACADEMIC NETWORKS
Government of India
on

Phylogenomics and Molecular Diagnostics for Species Identification

14-18 October, 2019

By

Expert Foreign Faculty

Samuel Wooster James (PhD)

IOWA University, IOWA, USA



Organized by
Department of Zoology,
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GIAN Portal: <http://www.gian.iitkgp.an.in>

University web: <http://www.dhsgu.ac.in>

ABOUT THE PROGRAM

MHRD has approved a new program entitled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, Internationally to encourage their engagement with the Institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence. In order to garner the best international experience into our system of education, enable interaction of students and faculty with the best academic and industry expert(s) from all over the world and share their experience and expertise to motivate people to work on Indian problems.

One week course on "Phylogenomics and Molecular diagnostics for Species Identification" has been approved by MHRD under the GIAN program which is being organized by the University. This course will be conducted under the supervision of foreign faculty Dr Samuel Wooster James, IOWA University, IOWA, USA. The program will cover sharing of theoretical & experimental knowledge among students, researchers, faculties and scientists.

ABOUT THE COURSE

Internationally acclaimed researcher with expertise in the field of phylogenomics and molecular diagnostics will deliver lectures. The participants will be exposed to the fundamentals of molecular taxonomy and techniques of species identification with use of phylogenomics. The participants will develop the capability of using molecular diagnostics for the identification of species. The earthworm will use as model taxon to understand phylogenomics and species identification techniques

ABOUT THE FOREIGN FACULTY



Prof. Samuel James is an American scientist, a researcher specializing in evolutionary biology, focusing on earthworm taxonomy. Since January 2011, James has been working on phylogenomic investigation of the evolutionary history of Annelida, as part of the WormNet II: Assembling the Tree of Life for Annelida project. He is currently part of the University of Iowa's Department of Biology. His research interest are exploration of earthworm biodiversity, phylogenetic systematics and biogeography of megascolecid. He has published several papers in International peer-reviewed journals including Pedobiologia, American Midland Naturalist, Megadrillogica, Soil Biology and Biochemistry.

WHO CAN PARTICIPATE

Students U.G., P.G., Ph.D. and postdoctoral fellows from reputed academic and technical institutions.

Faculty members/scientists working in area of molecular taxonomy, phylogenomics and earthworm biology.



COURSE SCHEDULE

14 October, 2019 (Monday)

Inauguration

- Lecture: 1** Introduction to Worldwide scenario of Molecular diagnostics & Phylogenomics
Tutorial: 1 Challenges for species identification, diversity of life, life stages with use of molecular diagnostics.

15 October, 2019 (Tuesday)

- Lecture: 2** Taxonomic Impediments or Impediment to Taxonomy?
Lecture: 3 Molecular diagnostics: how it complements to systematics, molecular phylogenetics and population genetics ?
Tutorial: 2 DNA extraction and the Markers of Choice and their Specifics.

16 October, 2019 (Wednesday)

- Lecture: 4** Phylogenomics Reconstruction: the principles of building phylogenetic trees.
Lecture: 5 DNA barcodes for everyday life: routine authentication of Natural Health Products.
Tutorial: 3 Molecular Systematic of major groups and the Tree-of-Life: An introduction of major branches of the Tree, including Species diagnostic exercises with use of bioinformatics tools.

17 October, 2019 (Thursday)

- Lecture: 6** Molecular diagnostics of Biodiversity (Concepts): speciation, radiation, macroevolution.
Lecture: 7 Phylogenomics of Biodiversity (Applied): Measuring diversity, geospatial analysis, collection management and biodiversity informatics.
Tutorial: 4 Molecular Systematics: generating and analysing molecular data; model-based phylogenomics.

18 October, 2019 (Friday)

- Lecture: 8** Towards next-generation biodiversity assessment using DNA metabarcoding and High Resolution Melt (HRM)
Lecture: 9 DNA barcoding: how it complements taxonomy, molecular phylogenetics and population genetics.
Tutorial: 5 Application of Handheld DNA Barcoding Device and their execution in applied biology.
Lecture: 10 Troubleshooting during phylogenomics study.
Evaluation of participants.
Discussions and problem solving session.

Valedictory

ACCOMMODATION

Accommodation, if required can be arranged for the participants on payment basis subject to availability. For accommodation booking participants may contact the course coordinator.

HOW TO REACH

Sagar is a division head quarter, well connected by rail and roads. Sagar railway station is mentioned as Saugor (SGO) in railway time table. Sagar station is located in Bina-Katni section of west central Railway. There is direct train connectivity for Delhi, Mumbai and Kolkata. Sagar is also connected with excellent road from Bhopal (190Km), Jabalpur (185Km), Jhansi (200Km) and Bina (75Km). The nearest Airport is Bhopal (200Km).



REGISTRATION FEE

- Foreign Participant : US\$ 200
- Students (U.G., P.G., Ph.D.) : INR 800*
- Faculty / Scientists/ Postdoc Fellows : INR 2000
- Industry Participants : INR 5000
- On-Spot Registration (limited) : INR 3000
- * Fee for SC/ST Candidates : 50% waived off.

REGISTRATION WORKFLOW

MHRD-GIAN is a global program thus participants are required to register online at GIAN portal: <http://www.gian.iitkgp.ac.in> Follow instructions at "Courses Registration Portal" and submit login details and brief academic details. Rs. 500 is required to be paid for registration at GIAN portal. Participants then need to select "Phylogenomics and Molecular diagnostics for Species Identification" course from the list at "Course Registration". Finally submit the registration form, take a 'pdf print' and send to us by email. Selected participants will be informed to submit the "Course Registration Fee" in the form of demand draft in favor of "The Registrar, Dr. Harisingh Gour University, Sagar". Seats limited in number and preference will be given to scholars in the related research area. Save your spot before 30th September 2019.

Patron

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