

Phylogenomics and Molecular Diagnostics for Species Identification

Course coordinator: Prof Shweta Yadav, Dr Harisingh Gour Vishwavidyalaya, Sagar

Foreign faculty: Prof Samuel W James, IOWA University, IOWA, USA

Title of GIAN Course		Phylogenomics and Molecular Diagnostics for Species Identification
GIAN Course ID		174046H07
Period of Course		14 October -18 October, 2019
Name and Department of Faculty from host Institute		
Course Coordinator		
Name		Prof Shweta Yadav
Department		Dept of Zoology
Name and Affiliation of International Faculty		
Name		Prof Samuel W James
Affiliation		IOWA University, IOWA,USA
Structure of the Course		
Duration of course		I Week
Number of credits		01
Total number of lectures in the course		14
Number of lectures by International Faculty		10
Number of lectures by Host Faculty		04
Number of hours of laboratory/tutorial sessions		17.30
Participants of the Course		
Number of student participants		41
Number of Faculty participants		03
Total Number of participants		44
Number of participants who credited for the course		38
Registration Fee Collected		37600.00

Total amount	37600.00
Fund received from Ministry of Human Resource Development	\$8000(5.44 lakhs)
Total Receipt (Rs)	581600.00

Interaction with International Faculty

Interaction of Host Faculty:

Prof Samuel W James is an American scientist, a researcher specializing in evolutionary biology, focusing on earthworm taxonomy. Prof. reputed with fellow researchers, has discovered numerous species of annelids, including *Diplocardia californiana*, *Diplocardia woodi*, *Diplocardia montana*, and a new species related to the Giant Palouse earthworm.

A team working on earthworm biology at HSGU learnt the technology of molecular diagnostics is actively engaged in discovering new species of earthworms with use of molecular diagnostics.

The details are as under:

1. Tiwari Nalini, **James Samuel W.** and **Yadav Shweta** 2022. First record of *Pheretima vungtauensis* (Clitellata: Megascolecidae) in India and its Phylogenetic relationship with *Metaphire houlleti*. *Biologia* <https://doi.org/10.1007/s11756-022-01074-y>.
2. Thakur Samrendra, Lone AR, Tiwari Nalini, **James W. Samuel**, Jain Subodh K. and **Yadav Shweta**, 2021. A contribution to earthworms' diversity (Clitellata: Moniligastridae) of Kerala, a component of Western Ghat biodiversity hotspot, India using an integrated approach of taxonomy. *Animal Biodiversity and Conservation* 44(1):117-137.

Interaction of other faculty from

Dr Rajesh Yadav, Dept of Forensic, Dr Sarvendra Yadav, Dept of Anthropology and Dr Raj Kumar Koiri, Dept of Zoology have interacted with the foreign faculty.

Interaction of faculty/researchers from other institutes/organizations

Dr Tunira Bhduria, Associate Professor, Kanpur University, Kanpur, Dr Rajvir Singh Ojha, Associate Professor, Dr BRA University, Agra and Dr Himanshu Pandey, Assistant Professor, Kamau University, Nanital have interacted to foreign faculty.





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,
School of Biological Sciences
Dr. Harisingh Gour Vishwavidyalaya
(A Central University), Sagar (M.P.)
Contact No: 9479983812
e-mail: kmshweta@gmail.com

GIAN Portal: <http://www.gian.iitkgp.ac.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, Megadriologica, 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 30 th September 2019.	
Patron	
Prof. R. P. Tiwari Hon'ble Vice-Chancellor Dr. H.S. Gour Vishwavidyalaya (A Central University), Sagar, Madhya Pradesh, India	
Program Advisors	
Prof. A.N. Sharma Director Academic Affairs	Prof. P.K. Khare Dean School of Biological Sciences
Prof. Janak D. Ahi Head Department of Zoology	
Local Coordinator for GIAN	
Prof. Devashish Bose Head Department of Criminology & Forensic Science	
Scientific Advisory Committee	
Prof. Subodh K. Jain Prof. Versha Sharma Prof. Archana Mehta Prof. M.L. Khan Prof. Naveen Kango Dr. Malvika Sikdar Dr. Deepali Jat Dr. Payal Mahobiya Dr. Rashmi Srivastava Dr. Siddharth Kumar Mishra Dr. Raj Kumar Koiri Dr. Ashwani Kumar Dr. Yogesh Bhargawa Dr. C. P. Upadhyaya Dr. Rajaneesh Anupam	
Program Committee	
Mr. Muneeer Malla Mr. Pir Ishfaq Ms. Gayatri Rai Ms. Nalini Tiwari Mr. Azhar Rashid Lone Ms. Swati Singh Thakur Ms. Neha Joshi Ms. Swati Jain	
Mr. Abhishek Jain Ms. Roshni Jain Ms. Kiran Singh Mr. Samrendra Thakur Ms. Ena Dodwani Ms. Saktipradayani Ms. Sangeeta Nayak Mr. Hari Lal Yadav	
Course Coordinator	
Prof. Shweta Yadav Department of Zoology Dr. Harisingh Gour Vishwavidyalaya (A Central University) Sagar -470003 MP India Contact No: 9479983812 e-mail: kmshweta@gmail.com	
Kailash Book Binder 9300298810	

List of Participants

S.No.	Name	Affiliation	Designation
1.	Dr. Rajiv Singh Ojha	Dr BRA University, Agra	Faculty
2.	Dr. Himanshu P. Lohani	Kumaun University, Nanital	Faculty
3.	Dr Tunira Bhaduria	CSJMU, Kanpur	Faculty
4.	Jeetika Siddhu	Kumaun University, Nanital	Research Scholar
5.	Kakade Sumit Hiranman	JNKV, Jabalpur	Research Scholar
6.	Sandhya Sinha	JNKV Jabalpur	Research Scholar
7.	Sanhita Vijay Malvi	JNKV Jabalpur	Research Scholar
8.	Mohd. Umar Farooqi	CSJMU, Kanpur	Research Scholar
9.	Mr. Surya Prakash Reddy	JNKV, Jabalpur	Research Scholar
10.	Borkar Sundar	JNKV Jabalpur	Research Scholar
11.	Radheshyam Ramkrishna Dhola	BHU, Varanasi	Research Scholar
12.	Mahalle Rashmi Manohar	BHU, Varanasi	Research Scholar
13.	Lokesh Lodhi	CCSU, Meerut	Research Scholar
14.	Debadatta Sethi	Orissa University of Agriculture and Technology, Orissa	Research Scholar
15.	Amresh Kumar	Dr BRA University, Agra	Research Scholar
16.	Prveen	Dr BRA University, Agra	Research Scholar
17.	Vaidehi Dubey	Dayalbagh Educational Institute, Agra	Research Scholar
18.	Pir Mohd Ishfaq	DHSGU, Sagar	Research Scholar

19.	Nalini Tiwari	DHSGU, Sagar	Research Scholar
20.	Zaved Ahmad	DHSGU, Sagar	Research Scholar
21.	Kainat Usamani	DHSGU Sagar	Research Scholar
22.	Ravina Rai	DHSGU Sagar	Research Scholar
23.	Debarata Dash	DHSGU Sagar	Research Scholar
24.	Suresh Nath	DHSGU Sagar	Research Scholar
25.	Vinodinee Doubey	DHSGU Sagar	Research Scholar
26.	Vaibhav Gupta	DHSGU Sagar	Research Scholar
27.	Shweta Dongre	DHSGU Sagar	Research Scholar
28.	Payal Priyadashani Nayak	DHSGU Sagar	Research Scholar
29.	Saktipradiani Chhual Singh	DHSGU Sagar	Research Scholar
30.	Asha Gound	DHSGU Sagar	Research Scholar
31.	Eena Dodwani	DHSGU Sagar	Research Scholar
32.	Sangeeta Nayak	DHSGU Sagar	Research Scholar
33.	Hari Lal	DHSGU Sagar	Research Scholar
34.	Piyush Badghare	DHSGU Sagar	Research Scholar
35.	Sunny Rathee	DHSGU Sagar	Research Scholar
36.	Sakshi	DHSGU Sagar	Research Scholar
37.	Kiran Singh	DHSGU Sagar	Research Scholar
38.	Chameli Bandhaw	DHSGU Sagar	Research Scholar
39.	Samrendra Singh Dangi Thakur	DHSGU Sagar	Research Scholar
40.	Farhat Khan	DHSGU, Sagar	Research Scholar
41.	Radha Rajpoot	DHSGU, Sagar	Research Scholar
42.	Deepak Gupta	DHSGU, Sagar	Research Scholar
43.	Shivangi Chauroyisa	DHSGU, Sagar	Research Scholar
44.	Piyush Sharma	DHSGU, Sagar	Research Scholar

Sanction Order



GLOBAL INITIATIVE FOR ACADEMIC NETWORKS (GIAN)
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
Kharagpur - 721302

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No.IIT/GIAN/S-19/1673
Date: 23/07/2019

To
The Vice Chancellor
Dr. Harisingh Gour Vishwavidyalaya
Sagar - 470 003
Madhya Pradesh

Subject: Approval of courses and sanction of funds for implementation of Global Initiative for Academic Networks (GIAN) programme during this financial year.

Sir/Madam,

I am pleased to inform you the GIAN implementation committee has approved the proposals submitted from your Institute/University as detailed in the following table.

#	Course Info	Start/End Date	Amount allotted (max.)
1	174046H07: Phylogenomics and Molecular diagnostics for Species Identification Foreign Expert: Samuel Wooster James, United States of America Coordinator: Shweta, Zoology, Harisingh Gour Vishwavidyalaya Madhya Pradesh	14/10/2019 to 18/10/2019	\$8000 (Rs. 5.44 Lakh) (for 10 lectures in 5 days)

The validity of this approval order is subjected to fulfilling the following terms and conditions:

- The amount allocated for each course is the maximum amount and is to be spent for (a) honorarium and travel of one foreign expert/faculty only (b) lecture note preparation (c) video recording of the course (d) contingencies and miscellaneous expenses, if any. A maximum of Rs. 1.5 lakhs (for one week course, 10-14 lectures) and Rs. 2 lakhs for (2 weeks course, 20-28 lectures) can be spent for items (b), (c) and (d) only.
- The activities in the scheme should be limited to the extents of fund available with the grantee Institution at any given time. The grantee Institution would bear responsibility for any expenditure incurred over and above available grants and the sanctioning authority or MHRD would not be liable to reimburse the same, on a routine basis, except as per rules.
- A statement of expenditure and utilization certificate of the fund released signed by the **appropriate financial authority** should be sent within 30 days after completion of the course. The GIAN Implementation Committee will be liberty to blacklist those Institutions, which do not submit the utilization certificate within the prescribed time from any future participation in the GIAN initiative

and recommend to MHRD for stringent action.

- Each course should be video recorded and appropriate consent should be obtained from foreign faculty.
- Institute will ensure that the course coordinator will not violate copyright of anyone knowingly or willingly for the preparation of course material.
- Institute shall send a course completion report alongwith soft copy of course materials and video recording of the course within 30 days after completion of the course.
- The account where this fund is kept shall be open to inspection by the sanctioning authority and audit, both by Comptroller and Audit General of India under provision CAG (DPC) act 1971 and internal audit by the Principal Accounts Office of MHRD, Dept of Higher education, whenever the grantee is called upon to do so.
- Institute will advise the Course Coordinator to finalise and upload the course brochure to GIAN portal (www.gian.iitkgp.ac.in) as early as possible for wide publicity. **The sanctioned fund will be released after the submission of utilization certificates for the fund received for all previously completed courses.**
- The sanctioned fund will be transferred only through Public Fund Management System (PFMS). Institute should register itself as the child organisation of IIT Kharagpur for the GIAN scheme in the PFMS.

Kindly send us an acceptance of the same along with duly signed pre-stamp receipt and Bank details, for transfer of funds through RTGS.


Anurag K. Singh
National Coordinator
Global Initiative for Academic Networks (GIAN)

Copy to :-

- Local Coordinator - GIAN, Harisingh Gour Vishwavidyalaya Madhya Pradesh
- Shri Praveen Kumar, IAS, JS, MHRD
- Ms. Darshana Momaya Dabral, JS & FA, MHRD
- Registrar, IIT Kharagpur - for release of funds
- Office copy, GIAN, IIT Kharagpur