From the Desk of the Vice-Chancellor

I am happy to know that the Department of Nutrition Biology of the University is organizing a course titled "Metabolomics in Food and Nutrition Science Research: From Concepts to Applications" from February 15-19, 2019 under the MHRD scheme of Global Initiative of Academic Networks (GIAN). I take pride in sharing with the stakeholders that this course is the 11th GIAN Course conducted by the University in the last two years.

It is enlightening to note that the Course will cover the specific topics of relevance including Metabolomics; Metabolic Enzymes and Pathways; Analytical Techniques for Metabolomics; Metabolomics in Nutrition; Diet and Diseases; Introduction to Foodomics; Dietary Biomarkers; Application of Metabolomics in Nutritional and Foodomics Problems and Next Generation Nutritional Biomarkers and their Role in Disease Diagnosis. The course contents are sure to enrich the knowledge of the participants about the latest trends in Metabolomics and Foodomics. Besides, the expertise of the foreign expert conducting the GIAN course convinces of its success, well in advance.

I hope that the students and faculty of different universities shall take the fullest advantage of the course which is sure to orient the participants towards innovative and emerging trends in the discipline of Nutrition Biology.

Here, I would like to extend my compliments to Local Coordinator, GIAN and the host faculty coordinating this course for carrying forward the agenda of the University to adopt innovative pedagogies for dissemination of knowledge.

At the end, I wish the very best of luck for the organization of this course.

(Prof. R. C. Kuhad)

Foreign Faculty

Prof. Gaikwad's research has been focused in the areas of Metabolomics, Metabolism, Modulation of Metabolic Pathways, Mass Spectrometry and its Applications, Chemical Carcinogenesis, Food and Disease Biomarkers, and Biomarker Synthesis. He has recently developed Steroidomics platform the first, most advanced and unique in the world. Using this platform, we can now measure all classes (Androgens, Bile acids, DNA-adducts, Estrogens, Glucocorticoids, Mineralocorticoids, Neurosteroids, Oxysterols, Progestogens and Steroid-conjugates) of steroids with enhanced precision and sensitivity. He has patented this technology which is the foundation for the current R&D and service at the Gaikwad Steroidomics Laboratory (www.gaikwadsteroidomics.com). Dr. Gaikwad has been awarded "Outstanding Performance Award" for successful development of biomarker for early detection of breast/prostate cancer as well as for Parkinson's disease. He is a co-investigator on recently awarded NIH multimillion-dollar U24 grant to establish few comprehensive metabolomics resource cores across US. He has won prestigious "Hellman Fellowship" award. He has authored more than 60 peer reviewed publications in high impact factor journals and is inventor on three International patents.

Dr. Gaikwad obtained his MS in Organic chemistry from University of Pune and PhD from Indian Institute of Science, Bangalore. He completed his postdoctoral training at University of California at San Francisco and Harvard Medical School. Dr. Gaikwad served as a Director of Steroid Core at the NIH West Coast Metabolomics Center, Davis. Dr. Gaikwad left his tenure track professor position at Departments of Nutrition and Environmental Toxicology, UC Davis to start world's first steroidomics company.

Host Faculty

Dr. Tejpal Dhewa is a faculty in School of Interdisciplinary and Applied Life Sciences, Central University of Haryana, Mahendergarh. He is the Coordinator, Food Safety Training and Certification (FoSTaC) Centre, Food Safety and Standards Authority of India (FSSAI), and University SWAYAM Coordinator- Central University of Haryana. Dr. Dhewa is a Course Coordinator of SWAYAM UGC MOOC on *"Food Microbiology and Food Safety"*. Dr. Dhewa has a diverse industrial, teaching, and research experience. He has published his research works in national and international journals.Dr.Dhewa also supervised several master's theses/dissertations. He has successfully completed DU innovation project (2013-2015), and earlier conducted a GIAN Course on *"Food Safety, Food Security, and Food Regulations: A Primer"* from September 16-20, 2018. Moreover, Dr. Dhewa's research is funded by Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India.

Course Coordinator
Dr. Tejpal Dhewa
Assistant Professor
Department of Nutrition Biology
Central University of Haryana
Mahendergarh-123031
Mob: 8826325454
Email: tejpaldhewa@cuh.ac.in

Local Coordinator
Prof. Satish Kumar
Professor
Department of Biotechnology
Central University of Haryana
Mahendergarh-123031
Mob: 9052456653
E-mail: satishk@cuh.ac.in

How to Participate:

1. Register yourself on GIAN portal of IIT Kharagpur (http://www.gian.iitkgp.ac.in/)
2. Choose the course i.e."Metabolomics in Food and Nutrition Science Research: From Concepts to Applications " by drop down menu
3. Fill the Registration form and pay the course fee by DD/Cheque/RTGS
4. Scan filled Registration form and send to Course Coordinator by E-mail.

Government of India
Ministry of Human Resource Development

GIAN
GLOBAL INITIATIVE OF ACADEMIC NETWORKS

Metabolomics in Food and Nutrition Science Research: From Concepts to Applications

[Course Code: 174040H06]

Sponsored by Ministry of Human Resource Development (MHRD) under the Global Initiative for Academic Networks Scheme

February 15 - 19, 2019

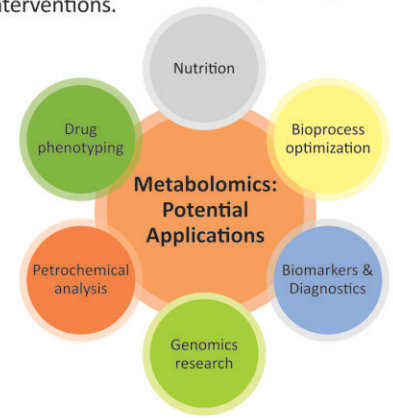
Department of Nutrition Biology
School of Interdisciplinary and Applied Life Sciences
Central University of Haryana
Jant-Pali, Mahendergarh
Haryana - 123031, www.cuh.ac.in

Metabolomics in Food and Nutrition Science Research: From Concepts to Applications

Global Initiative for Academic Networks, Ministry of Human Resource Development, New Delhi

1.0 Overview

Metabolomics is the scientific study of chemical processes involving metabolites, the small molecule intermediates and products of metabolism. It involves the comprehensive study of metabolites in cells, tissues and biofluids and a combination of analytical technologies i.e. nuclear magnetic resonance (NMR) spectroscopy and mass spectrometry (MS) along with advanced multivariate statistical methods, allowing us to learn various perturbations in metabolism. The phenotyping potential of metabolism makes it a pivotal tool for understanding biological systems, health and potential factors that affect health. Metabolomics applications continue to advance and provide unique insights for medical professionals (clinicians) and life science researchers/scientists across numerous academic and industries along with government organizations. It is also moving into clinical applications to promote wellness and to diagnose and treat diseases. Recently, a close link between metabolism and nutrition has been noticed and it is expected to be more affirm as it would be applied in the area of dietary biomarker identification, investigation of diet associated diseases, and study of nutritional interventions.



Keeping in view the enormous scope of metabolomics, this course is designed in such a way that participants will have an opportunity to learn the basic principles of metabolomics and development of technology with a special focus on sample preparation and elaborate discussion on analytical techniques used in metabolomics, as well as identification and applications of dietary biomarkers in nutrition research.

Moreover, a special emphasis will be on identification, characterization and validation of dietary biomarkers along with their key applications in diagnosis of human metabolic disorders. The topics in the module include metabolomics, advanced mass spectrometry based methods development in metabolomics, dietary biomarkers and next-generation nutritional biomarkers, opportunities in metabolomics and disease diagnosis; opportunities and technological hurdles in biomarkers validation, and development of novel low cost dietary biomarker based diagnostic kit for clinical use. The participants will learn these topics through lectures and tutorials. Also, case studies and assignments will be shared to stimulate research motivation of participants. Furthermore, the course will also encourage independent and critical thinking amongst the participants, through active learning exercises.

2.0 Objectives

The primary objectives of the course :

- To introduce the fundamental principles of metabolomics.
- To build confidence and capability with advanced mass spectrometry based methods development in metabolomics.
- To provide exposure to practical problems and their solutions, through case studies and live projects in metabolomics.
- To enhance the capability to identify dietary biomarkers and their applications in modern nutrition/food related research.

3.0 Teaching Faculty

1.Prof. Nilesh W. Gaikwad (Foreign)
2.Dr Tejpal Dhewa (Host)

4.0 Course details

4.1 Duration: 5 Days (February 15-19, 2019)

4.2 Lecture Schedule

Day 1 (February 15, 2019)

Lecture 1 10:30 AM -11:30 AM
Metabolic Enzymes and Pathways
Lecture 2 12:00 Noon- 1:00 PM
Introduction to Metabolomics
Tutorial 1 2:30 PM - 4:30 PM
Discussion on Metabolism, Metabolic Pathways and Metabolomics

Day 2 (February 16, 2019)

Lecture 3 10:30 AM -11:30 AM
Analytical Techniques used in Metabolomics
Lecture 4 12:00 Noon- 1:00 PM
Sample Separation for Metabolomic Analysis
Tutorial 2 2:30 PM - 4:30 PM
Discussion of Sample Preparation and Analytical Techniques

Day 3 (February 17, 2019)

Lecture 5 10:30 AM -11:30 AM
Metabolomics in Nutrition
Lecture 6: 12:00 Noon - 1:00 PM
Introduction to Diet and Diseases
Tutorial 3: 2:30 PM - 4:30 PM
Discussion of Metabolomics and Diet-Diseases, Opportunities and Challenges

Day 4 (February 18, 2019)

Lecture 7 10:30 AM -11:30 AM
Introduction to Foodomics
Lecture 8 12:00 Noon - 1:00 PM
Dietary Biomarkers: Identification and Characterization
Tutorial 4 2:30 PM- 4:30 PM
Discussion on Application of Dietary Biomarkers in Nutrition Research

Day 5 (February 19, 2019)

Lecture 9 9:00 AM to 10:00 AM
Application of Metabolomics in Problems of Nutrition
Lecture 10 10:15 AM to 11:15 AM
Application of Metabolomics in Problems of Foodomics
Tutorial 5 11:30 AM to 1:00 PM
Discussion on Next-Generation Nutritional Biomarkers and their Role in Disease Diagnosis

Examination: 2:00 PM-4:00 PM

5.0 Who can attend?

- Students at all levels (B.Tech/B.Sc./M.Sc/M.Tech/Ph.D.) or faculty from reputed academic institutions and technical institutions.
- Scientists, engineers and researchers from food/nutrition/microbiology/biochemistry/chemistry/biotechnology/neuroscience/cancer/pharmaceutical industries, and government organizations including R&D laboratories.
- Professionals working in or associated with biomarkers & diagnostic laboratories.

The participation fees:

- Participants from abroad: **US $ 150**
- Industry Participants: **INR 4000/-**
- Faculty/Scientists: **INR 2000/-**
- Students: **INR 1000/-(OBC/UR); INR 500 (SC/ST); INR 0/- (PWD)**

The above fee includes all instructional materials, computer use for tutorials, and assignments, laboratory equipment usage charges, 24 hrs free internet facility. The participants will be provided accommodation on payment basis.

GLOBAL INITIATIVE OF ACADEMIC NETWORKS

Metabolomics in Food and Nutrition Science Research: From Concepts to Applications

[Course Code: 174040H06]

(Sponsored by Ministry of Human Resource Development (MHRD) under the Global Initiative for Academic Networks Scheme)

February 15 - 19, 2019

To

.....

.....

.....

.....

Correspondence :

Dr. Tejpal Dhewa
Course Coordinator (GIAN Course)
Department of Nutrition Biology
School of Interdisciplinary and Applied Life Sciences
Central University of Haryana
Mahendergarh-123031
Mob: 8826325454
Email: tejpaldhewa@cuh.ac.in

Government of India
Ministry of Human Resource Development

GLOBAL INITIATIVE OF ACADEMIC NETWORKS

Metabolomics in Food and Nutrition Science Research: From Concepts to Applications

[Course Code: 174040H06]

(Sponsored by Ministry of Human Resource Development (MHRD) under the Global Initiative for Academic Networks Scheme)

February 15 - 19, 2019

REGISTRATION FORM

PERSONAL DETAILS

Name of the Applicant : _____

GIAN Application ID : _____

Date of Birth : _____

Occupation : _____

Institution Address : _____

E-mail : _____

Mobile Number : _____

Paste recent passport size coloured photograph

REGISTRATION FEE DETAILS

By Cheque

Amount (INR) : _____

Account Number : _____

Account Holder's Name : _____

Cheque No. & Date : _____

By NEFT

Amount (INR) : _____

Account Number : _____

Account Holder's Name : _____

Transaction ID & Date : _____

By Demand Draft

Amount: _____ DD No. _____

Bank: _____ Date: _____

Note:

Signature

- Registration should be made in favour of **GIAN, Central University of Haryana A/c** via **cheque/online transfer mode** only. (**Bank Name & Address:** Punjab National Bank, Jant-Pali, Mahendergarh, Pin-123031; **Account no.** 7824000100009605; **MICR** 123024106; **IFSC** PUNB0782400)
- Proof of Registration fee payment should be sent to Dr. Tejpal Dhewa, Department of Nutrition Biology, Central University of Haryana, Mahendergarh - 123031
- The scanned copy of filled Registration form duly signed by the applicant along with the proof of fee submission should also be sent by E-mail to Dr. Tejpal Dhewa(tejpaldhewa@cuh.ac.in)
- In case the candidate requires an accommodation a separate E-mail regarding this should be sent to tejpaldhewa@cuh.ac.in **before January 01, 2019**

Contact:

Dr. Tejpal Dhewa

Course Coordinator (GIAN Course); Email: tejpaldhewa@cuh.ac.in; Mob:8826325454