Introductory Big Data Analyses to Gain Insights in Precision Medicine

4 Feb - 25 Feb 2023 (every Sat afternoon) | 2pm - 5.30pm

Delivery Mode: Online

NUS Course Code: BCH_PM02

Precision Medicine is here and hyped to be a game-changer, with the potential to transform modern medicine and drive health outcomes. So what precisely is Precision Medicine? How does Precision Medicine revolutionise disease identification, diagnosis, prognosis and/or treatment? With OMICs and Big Data being key features, what opportunities and challenges does Precision Medicine presents, before it can be fully realized in the clinic?

This course is Part 2 of 2 complementary Precision Medicine (PM) CET courses, which can be taken either individually or together depending on the participants' interests/inclinations.

This Part 2 PM CET course will introduce participants to some basic skills of handling big data in Precision Medicine including data wrangling, analyses, visualization to gain insights, as well as machine learning to predict disease in PM through experiential learning. The companion PM CET (BCH_PM01) will introduce participants to the field of Precision Medicine including the Hype, Hope, Premise, Nuts & Bolts (including the concept of OMICs in PM and types of PM), as well as Opportunities and Challenges of PM. It will also introduce some common genomics and proteomics tools used in PM and highlight how PM is/can be applied clinically for both genetic as well as complex diseases.

Who Should Attend?

➤ University graduates who are interested to explore a career in:

- Biomedical Education/Research, Biotechnology, Pharmaceutical, Deep Technology startup, Diagnostic lab or Academic Medicine

➤ Clinicians who would like to apply for Precision Medicine in their clinical practice or become clinical leaders in Precision Medicine

Click to Register

Register by 30 Jan 2023

Visit the Course Webpage or contact the PHM team at mscphm@nus.edu.sg

Course Objectives

At the end of Part 2 Precision Medicine CET course, participants will:

- Appreciate the Complexity of Big Data in Precision Medicine
- Be Introduced to and Experience the analyses of one type of data used in Precision Medicine

Basic skills that participants will be introduced to include:

- Data Wrangling, Analyses and Visualization to gain insights,
- Employing one Machine Learning model to predict disease

Programme Breakdown

Day 1

Harnessing Big Data for Precision Medicine

Days 2 - 4

- Introductory Data Wrangling and Analyses for Precision Medicine
- Introductory Data Visualization/Insights for Precision Medicine
- Introductory Machine Learning to predict disease in Precision Medicine

Course Fees

$2033 per pax (Includes GST)

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Our Trainers

Dr Kenneth Ban

Senior Lecturer, Department of Biochemistry, NUS Yong Loo Lin School of Medicine
Program Director for Healthcare and Biomedical Sciences
National Supercomputing Centre (NSCC) Singapore
Assistant Principal Investigator, Institute of Molecular and Cell Biology
A*STAR Medical Educator

Dr Kenneth Ban obtained his BSc (Hons) in Biochemistry and MBBS degrees at NUS as well as a PhD in Cancer Biology at Stanford University. He did his postdoctoral training in mouse cancer genetics at the Institute of Molecular and Cell Biology (IMCB) Singapore prior to joining the Department of Biochemistry at NUS. He has been a medical educator since then and serves as the Phase I Director at the Yong Loo Lin School of Medicine.

As a leader of the Health informatics track in NUS Medicine, Dr Ban educates medical students to develop foundational competencies in data science. Dr Ban also serves as a Program Director for Health and Biomedical Sciences at the National Supercomputing Singapore.

Dr Lim Lee Jin

Instructor, Department of Biochemistry,
NUS Yong Loo Lin School of Medicine

Dr Lim obtained her BSc (Hons) at the University of Edinburgh and PhD at the National University of Singapore. She was previously a postdoctoral research fellow at the Department of Biochemistry before joining the department as an instructor. Her PhD research focuses on clinically relevant long non-coding RNAs in cancer pathways and gain insights into their potential impacts on clinical characteristics. During her postdoctoral training, her research focuses on improving healthcare through precision medicine. She analysed big data to identify snps and/or clinical characteristics signatures that potentially predict treatment responses using machine learning, which led to publications in Rheumatology (IF: 7) and EBioMedicine (IF: 11).

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