ISI WSC 2019 Short Course Programme

COURSE TITLE :	**SC3 - Mining Electronic Health Record (EHR) data: the past, presence, and future**
DURATION :	1 Day
DATE :	17 August 2019
VENUE :	Sasana Kijang
REGISTRATION FEES :	Developed Country MYR 1,140 (Approximately EUR 240)
	Developing Country / Student* MYR 710 (Approximately EUR 150) *For student, proof of enrolment is required*

INSTRUCTOR

Prof Steven (Shuangge) Ma
Department of Biostatistics, Yale University
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Shuangge Ma is Professor of Biostatistics at Yale University. His research interests include big data, EHR (electronic health record) data analysis, network analysis, public health, and health economics. He is an Elected Member of ISI and Fellow of ASA. He has published over 200 articles in prestigious journals and 2 books. He has been playing a leading role in biostatistical studies on cancer, health economics, and other areas. He has taught multiple short courses on advanced data science technologies at international conferences and renowned universities. He is an associate editor of JASA and other seven prestigious journals.

COURSE DESCRIPTION

With the fast development of information technologies and computing power, many nations (both central and local governments), large insurance systems, and health care systems have established or are establishing large electronic health record (EHR) databases. Effectively mining such databases using advanced data science techniques can generate unprecedented value for public health care, biomedicine, insurance management and planning, and other purposes. In this course, we will review the past and current status of the establishment of EHR databases and discuss successful (and unsuccessful) examples. Simple and advanced data science techniques that have been developed tailored to EHR data will be reviewed, with extensive examples provided. Discussions will then be provided on the future of EHR data mining, what needs to be done in terms of database/system development and data science methodology development, their implications, and the unique role statisticians can play

SYLLABUS

The course will include the following sections:
1. The analysis of EHR data: the past (the analysis of hospital and community based data; simple statistical methods; important findings)
2. The analysis of EHR data: the present
    a. Construction of large EHR databases by the governments, health care systems, insurance systems, and others.
    b. Advanced data science methods for mining the large EHR databases: from individual diseases to pan-disease analysis; from descriptive analysis to network analysis to deep learning. The special concern on statistical computing.
    c. Successful and unsuccessful stories.
3. The analysis of EHR data: the future
    a. Additional investments needed from the governments and industry.
    b. Development of more powerful data science mining methods: methodology, theory, and computation.
    c. Statisticians: how can we make ourselves more useful?

Course slides will be made available. Extensive references and examples will be provided.

TARGET AUDIENCE

- Government statisticians working in public health, medical, and informatics departments
- Statisticians from large insurance companies
- Statisticians from large biopharmaceutical companies
- Faculty from academia with interest in EHR data analysis and graduate and undergraduate students

It is noted that no background in EHR data analysis is required. Audience with bachelor level of training in statistics (or a related field) should be able to understand the majority of the course.