ISI WSC 2019 Short Course Programme

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| COURSE TITLE : | **SC7 - Diagnostics and Robust Parameter Estimation of Nonlinear Regression with Application Using R** |
| DURATION : | 2 Days |
| DATE : | 16 - 17 August 2019 |
| VENUE : | Sasana Kijang |
| REGISTRATION FEES : | Developed Country MYR 1,760 (Approximately EUR 370)<br>Developing Country / Student* MYR 1,140 (Approximately EUR 240)<br>** For student, proof of enrolment is required* |

## INSTRUCTOR 1

**Dr Hossein Riazoshams**
Lamerd Islamic Azad University, Iran
Iran

Ph.D of Applied statistics from University Putra Malaysia. Postdoc from Department of statistics, Stockholm University, Sweden. Autor of “Robust nonlinear regression with application using R”, Author of R-package called “nlr”. Awarded as the Best Article of Iranian statistical association conference, Kerman 2016.

## INSTRUCTOR 2

**Prof Habshah Midi**
Department of Mathematics, Universiti Putra Malaysia
Malaysia

**Habshah Midi** received the B.A. degree in Mathematics from Drew University, USA in 1979, and the Master of Applied Statistics from the Ohio State University, Columbus, Ohio in 1981. She then joined Universiti Putra Malaysia as a lecturer and pursued her PhD (Statistics) from Universiti Kebangsaan Malaysia where she was awarded her doctorate in 1995. She became Associate Professor in 2002 and a Professor in 2011. Having published more than 150 papers in citation-indexed journals, her research interests focus on regression diagnostics, robust statistics, quality control, experimental design and application of statistical methods to real life problems. She supervises PhD and Master students with more than 30 have already graduated. In 2007, she was awarded the Vice Chancelor Fellowship Award (Excellence in Teaching) and was nominated by UPM for the National Academic Award (Excellence in Teaching) in 2016. Prof Habshah is actively involved in the Malaysia Institute of Statistics and has been appointed as the Vice President since 2014. A book entitled **“Robust Nonlinear Regression with Application Using R”** co-authored with Dr Hosein Riazosham (ex-PhD student), Azad University Iran and Prof Gebrenegus Ghilagaber, Stockholm University, Sweden has been published by John Wiley & Sons Publisher in 2018

## COURSE DESCRIPTION

This course explains how to fit nonlinear regression and detecting outliers, using robust statistics methods, specifically using authors' R-package "nlr" released in 21st March, 2018 package in R. The null false assumption conditions, such as heteroscedasticity of variance, and autocorrelated error cases will be discussed in this course as well.

## SYLLABUS

Defining Nonlinear model, robust loss functions, heteroscedastic variance models as an object.
Fitting nonlinear model using robust and classical methods
Fitting nonlinear model with heteroscedastic variance, using robust and classical methods
Fitting nonlinear model with autocorrelated error, using robust and classical methods
Outlier detection in nonlinear regression

## TARGET AUDIENCE

Statistical researchers
Statistical practitioners in any area that are modelling data using nonlinear regression
Scientist in any area that wants to find nonlinear regression models for data