Workshop on:

MULTI-LEVEL MODELLING OF BACTERIAL DYNAMICS USING THE R SOFTWARE

Organized by:

Dr. Ursula Gonzales-Barron

Dr. Ursula Gonzales-Barron, a Peruvian-Irish national, pursued PhD studies at the Biosystems Engineering Department of University College Dublin (UCD), Ireland (2006), through the award of the prestigious Irish Walsh Fellowship. After a postdoctoral research position at the School of Chemical Engineering in the University of Manchester, UK (2005), she took on the positions of Lead Researcher (2005-2007) and later on Senior Researcher (2007-2012) at UCD Biosystems Engineering, Ireland.

Her expertise resides in diverse areas of food safety and quality modelling, including microbial risk assessment, meta-analysis, predictive microbiology, acceptance sampling theory and Bayesian applications. In 2013, she was awarded a highly-competitive 5-year Development Career Fellowship by the Portuguese Foundation for Science and Technology (FCT). Dr. Gonzales-Barron has supervised >12 postgraduate students; has published >50 peer-reviewed articles and 8 book chapters; has presented her research findings at >40 international conferences, and has been in receipt of 7 grants from European competitive calls.
Website: http://cimo.esa.ipb.pt/CV/ursula/

Prof. Vasco Cadavez

Dr. Vasco Cadavez obtained his first degree in Animal Husbandry Engineering in 1993 and his Masters degree in Animal Production with specialisation in Feed and Nutrition in 1998 at the Portuguese University of Trás-Os-Montes e Alto Douro. After a novel research on carcass composition and quality using ultrasound, he obtained his PhD degree in 2004. He is currently a Professor at the Animal Science Department of the Polytechnic Institute of Braganza (IPB), and an active research member of the Food Safety and Technology Group at the CIMO Mountain Research Centre, based at IPB. Dr. Cadavez developed expertise in a wide range of mathematical and statistical modelling techniques, such as robust, logistic and multiple regression analyses; multivariate analysis including factor analysis, cluster analysis and classification techniques. He has also expertise in general linear models, count data and zero-inflated models, linear and non-linear mixed models and meta-analysis in the fields of animal science, agriculture and food safety. He has supervised 12 postgraduate students, has published over 25 peer-reviewed articles, has authored/edited 2 books, has written 10 book chapters, has presented at over 50 international conferences, and has given a number of workshops of statistical methods using the R software.
Website: http://esa.ipb.pt/~vcadavez/

Abstract:

This is a three-hour workshop aiming to provide participants with an excellent opportunity to learn the statistical approaches to fit non-linear multilevel models for the characterisation of bacterial kinetics. The objective of the workshop is to provide a hands-on training on how to obtain **in one step** accurate estimates of bacterial kinetics parameters from datasets that combine results from different environmental conditions. The intended audience for this workshop includes academic and industry researchers who have an interest in learning the R methods for diverse microbiology modelling applications.

The workshop is organized in two parts:
Part 1: Non-linear modelling in microbiology. Fitting non-linear bacterial kinetics models in R.
Part 2: Multilevel mixed modelling in microbiology. Comparison of models and validation in R.

The participants are expected to have a general knowledge on microbiology and statistics, and should bring their own laptops with R (http://www.r-project.org) and RStudio (http://www.rstudio.org) installed. Some basic experience with the R software is desirable.

References